THE OIL WEEKLY

ENGINEERING « NEWS » STATISTICS

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The Oil Man's Calendar

SEPT. 14-16	National Petroleum Association, Hotel Traymore, Atlantic City.
27 OCT. 2	American Association of Petroleum Geologists, Mid-Year Meeting, El Paso, Texas.
OCT. 5-7	American Institute of Mining & Metallurgical Engineers, Fall Meeting, Petroleum Division, Plaza Hotel, San Antonio, Texas
10-13	North American Gas Tax Conference, Tulsa, Oklahoma.
10-14	American Gas Association, Atlantic City, New Jersey.
10-14	National Safety Congress, Petroleum Section, Stevens Hotel, Chicago, Illinois.
12-13	Indiana Independent Petroleum Association, Hotel Severin, Indianapolis, Indiana.
18	National Stripper Well Association and Oklahoma Stripper Well Association, Annual Meetings, Tulsa, Oklahoma
19-21	Independent Petroleum Association of America, Tulsa, Oklahoma.
20-21	American Institute of Mining & Metallurgical Engineers, Petroleum Division and Industrial Minerals Division, Los Angeles, California.
27-29	Annual Convention, Texas Division, Mid-Continent Oil & Gas Assn., San Antonio, Texas.
NOV. 3-4	American Association of Petroleum Geologists, Pacific Section, Los Angeles, California.
14-18	American Petroleum Institute, (Annual), Stevens Hotel, Chicago
DEC.	Mid-Continent Oil & Gas Assn., Standing Tax Committees, Dallas, Texas.

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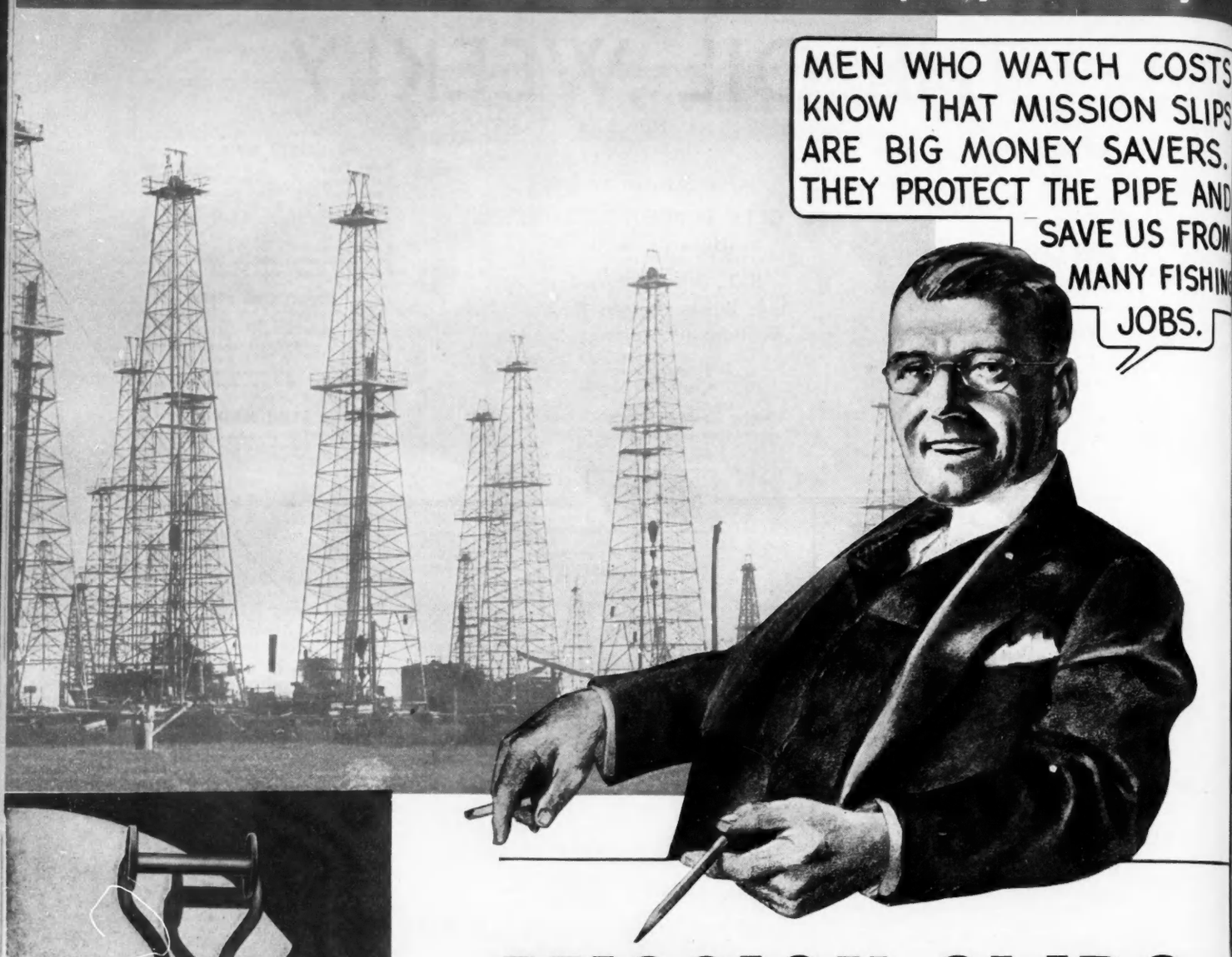
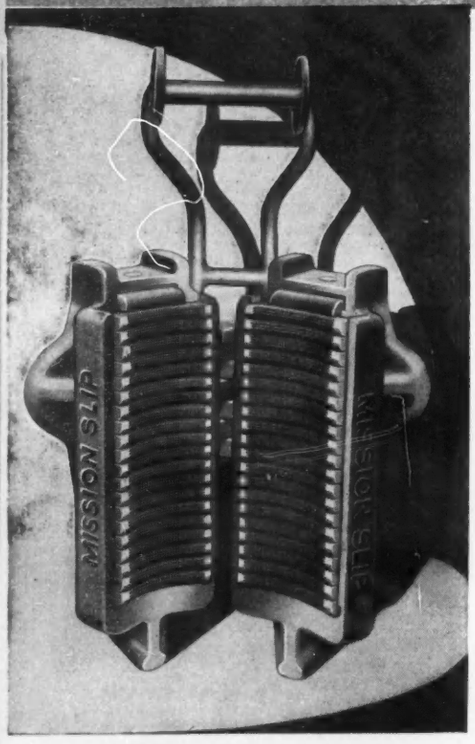
Says the man who watches the company's money.





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This Week's Panorama

THE American Federation of Labor is seeking to increase its strength by inviting C. I. O. unions to come into its ranks as groups or individuals, promising to operate on a broad basis of both industrial and craft forms of unionism. It claims it is ready and able to promote industrial unionism where advisable.

The A. F. of L. also is preparing proposed amendments to the Wagner Act to assure the federation equality with the C. I. O. The amendments would compel the labor board to recognize skilled trade unions as bargaining agents for the members, regardless of mass union bargaining for unskilled or semi-skilled workers.

Encouragement for Oklahoma Producers

Oklahoma crude oil producers lately have been encouraged to believe they may expect some relief from the restricted markets for their oil.

Particularly encouraging was the prediction of J. H. Hedges, acting director of the Bureau of Mines, that purchases of Oklahoma crude would increase as stocks of refinable crude decreased. Oklahoma's Senator Elmer Thomas had written a letter to the bureau in behalf of Southern Oklahoma stripper-well operators, protesting recent drastic reductions in purchases by the pipe line companies and condemning imports of foreign oil.

"With total stocks of refinable crude in the United States at close to a 17-year low," said Hedges, "perhaps the time is approaching when a larger part of the demand will be supplied from current production.

"The outlook in this direction," he continued, "is believed to be brighter than for an increased demand due to restricted imports, because, even though foreign oil were entirely excluded, sources of fuel oil other than Southern Oklahoma would be readily available."

Hedges pointed out that Oklahoma production is running about 425,000 barrels daily, while demand is close to 525,000 barrels a day, indicating that crude stocks of Oklahoma origin are being reduced 100,000 barrels daily.

In a conference previously, bureau officials had stated to Thomas that the federal government could not be of direct aid to stripper-well operators; that the Oklahoma Corporation Commission was in better position to give assistance.

Regular Crude Purchases Resumed

Also encouraging to Oklahoma producers was the announcement a week ago that Pure Oil Company would resume 100 percent purchases in the Healdton field, Carter County. The company had reduced its purchases 60 percent on August 1 because its storage was filled, due to a shutdown of the Muskogee refinery. Two other purchasers, Shell Petroleum Corporation and Magnolia Petroleum Company, continued taking 100 percent in August but had planned to cut back September 1 in proportion to the Pure takings in the interest of equitable withdrawals from leases, and the Pure action obviated that necessity.

Pure Oil Company under the new program will run the purchased crude to storage until the Ben Franklin Refining Company can recondition the old Wirt Franklin Petroleum Company plant at Ardmore and take over the well connections.

It is assumed that Pure Oil Company will withdraw as a purchaser in Southern Oklahoma when the Ben Franklin plant begins operating. It is also unofficially reported that contracts have been made under which Ben Franklin Refining Company and Bell Oil & Gas Company will take over all of the Pure connections in Healdton and possibly in other areas of Southern Oklahoma.

Further indication that Carter Oil Company (Oklahoma Pipe Line Company) contemplates withdrawing as a purchaser in Southern Oklahoma fields is seen in sales by the company of producing properties in the shallow areas to independent operators. Carter Oil Company some months ago began curtailing purchases in the area, having explained that the crude was not desirable and that the market for it had been diminishing.

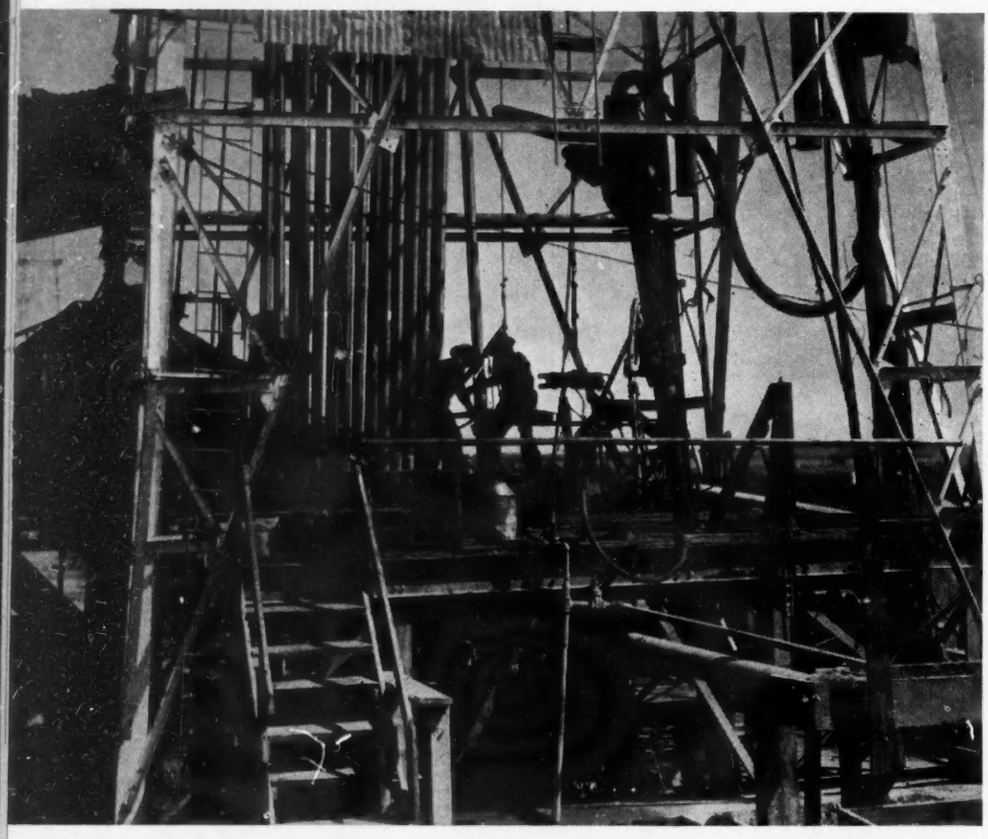
Illinois Competing with Pennsylvania

The important crude oil production that has been developed in Southern Illinois is taking markets away from not only Oklahoma, Kansas, and other Mid-Continent states but also to some extent from the Pennsylvania grade fields.

In the past year and a half, Illinois crude output has risen from 12,000 to about 60,000 barrels daily, through the opening of over a score of new fields, having within their reservoirs about a quarter of a billion barrels of oil. Meanwhile, exploration proceeds, and a further increase in production is anticipated.

The Illinois crude is similar to the high-gravity oils of the Mid-Continent and brings a similar price, but it enjoys an advantage of 20 to 30 cents a barrel over Oklahoma crude in pipe line rates to Ohio refining centers. Consequently, the Illinois crude has been cutting materially into the markets for Oklahoma and Kansas crude, making necessary the curtailment of production in the latter states.

Moreover, the Illinois development has come into direct competition with oil of the Eastern States, and



Eleventh producer for the Ramsey field, Payne County, the first field found in Oklahoma in 1938, was completed last week for 13,416 barrels initial from the Wilcox sand between 4745-85 feet. The well, Columbia 4, Section 18-18n-2e, is shown here as drill pipe was being removed prior to setting casing. So far all production in the field has been on a community block, which is operated by Mid-Continent Petroleum Corporation.

is increasing the market difficulties of the Pennsylvania grade producers and refiners. The industry of that region has depended for profits primarily on its output of high-quality lubricating oils, and it has been handling gasoline production essentially as a by-product, making little or no profit on it, or even sustaining losses, despite the advantage of the Pennsylvania gasoline over Mid-Continent gasoline from the standpoint of transportation costs. In competition with Illinois oil, however, the Pennsylvania gasoline does not have the large advantage in transportation charges, and this new competition eventually may have an adverse effect on the prices of the Pennsylvania gasoline, although such an effect has hardly been felt so far.

The refiners obtain from Pennsylvania grade crude about 7 percent neutral oils and 15 percent bright stock, while the gasoline yield is about 60 percent. Thus the refiner would lose as much through a ¼-cent a gallon gasoline price reduction as through a 2-cent decrease in neutrals or a 1-cent reduction in bright stocks.

Change in Texas Railroad Commission

Much speculation as to the possible effect on the oil industry has followed the Texas election of a week ago, in which aging C. V. Terrell, chairman of the Railroad Commission, was defeated for re-election by 30-year-old G. A. (Jerry) Sadler, independent oil operator of Longview, East Texas, who was a hotel bellboy 10 years ago. The voters agreed to put "Sadler in the Saddle" despite the endorsement of Terrell by Governor-Elect W. Lee O'Daniel. And so the Texas Railroad Commission next January will be composed of Sadler, Ernest O. Thompson, and Lon Smith.

The new member of the commission may bring about important changes in the oil conservation policies of the body, and his election may revive efforts in the legislature to create an appointive oil and gas conservation commission, which would take over from the railroad commission the administrative control over oil and gas.

Heretofore the railroad commission policies have been dominated by Terrell and Thompson, while Smith often has been in the minority and powerless. Both Terrell and Thompson have worked against Smith politically, and it was but natural for Smith to favor Sadler over Terrell in the recent election.

Thus the circumstances indicate a change from a Terrell-Thompson dominated railroad commission to one controlled by Smith and Sadler.

In the opinion of some observers, such a change might be from a conservative commission to a less conservative one. For under the Terrell-Thompson administration, allowables have been consistently conservative, and crude oil production has been held closely in balance with market demand.

Smith, on the other hand, has occasionally protested that allowables should be larger, and while his objections have been welcomed by some oil producers, they have been displeasing to others.

However, politics sometimes makes strange bedfellows, and it remains to be seen how the three railroad commissioners for the next two years will line up.

Aside from the possibility of a Smith-Sadler combination, there might be a Thompson-Sadler or Thompson-Smith domination of the commission. In other words, it is conceivable that any one of the three members may eventually find himself commonly in the minority.

Recent Developments Have Promising Implications

By L. J. LOGAN, Associate Editor

EARLIER expectations of an upturn in business activity are being not only fulfilled but exceeded, and the oil industry's outlook is correspondingly brightened. For an improvement in general business has been the chief requisite for restoring satisfactory conditions in the industry.

* * *

Business Index Up

Furnishing convincing evidence that a business upturn really is in progress was the contra-seasonal rise in the Federal Reserve Board's index of industrial production during July to 83 percent of the 1923-1925 average, from 77 percent one month earlier. Furthermore, the index continued to rise during the first three weeks of August, the board announced. The six-point rise in July was double the earlier estimates by the board's economists.

* * *

Oil Situation Better

Developments of the past week placed the oil industry in an improved position.

In ordering Saturday as well as Sunday shutdowns of all Texas fields in September, the Texas Railroad Commission assured a close balancing of national crude production with requirements for another month and thereby strengthened the markets for both crude and refined oils.

Other leading producing states also adopted conservative allowables, and will contribute to the market stability.

* * *

Allowables Promising

The national allowable picture for September is exceptionally favorable, promising to result in further sharp improvements of the industry's inventory situation.

Even under August allowables some progress was made in eliminating surplus stocks of crude oil and gasoline. And the September allowables are considerably stricter, indicating that unusually large withdrawals will be made from storage and that at the end of the month the stocks may no longer be very far above necessary working levels.

In August the industry reduced gasoline stocks about 5,000,000 barrels and in the first three weeks of the month it cut down crude stocks 3,500,000 barrels, although fuel oil stocks were increased about 2,500,000 barrels during the month.

Those changes in stocks occurred under a program of allowables in which the six leading producing states, accounting for over 90 percent of the national production, had combined allowables of 128,016 barrels daily or 4.1 percent under the Bureau of Mines estimates of demand for domestic crude (from wells or storage).

For September the six leading states have combined allowables of 292,592 barrels daily or 9.4 percent under the indicated market demand.

Consequently, the industry will be in position during September to make unusually heavy withdrawals from gasoline storage, a move which it obviously should strive to make, by strictly holding down crude oil runs to stills. For the gasoline stocks now held are still too large in relation to the trends of consumption. And it would be quite practical to curtail gasoline production materially, with the crude oil receipts at the refineries unusually low under the September allowables.

There is danger, however, that the refining division of the industry may fail to cash in fully on this opportunity to curtail plant operations and reduce gasoline inventories; that it may maintain refinery runs at excessive levels, despite having to dip further into crude stocks for a part of the supply of the raw material.

Nevertheless, the refining division lately has tended to be moderate in its activity, and it may choose the advisable course of holding crude runs fairly well in line with current crude production, meanwhile making needed withdrawals from gasoline stocks in meeting the prevailing market requirements.

* * *

Crude Prices Revised

The agreement last week by major as well as independent purchasers on a 10-cent reduction of the East Texas field crude price has at last settled the long-disturbed market in that area, and the new price schedules have given assurance that postings in the rest of the Mid-Continent will be maintained.

It had been foreseen for several months that the East Texas posting might have to be lowered eventually because of the competition of cheaper North Louisiana and Arkansas crudes; and it was anticipated also that any cut might be confined to the big field.

When the showdown came last week, it provided some pleasant surprises as well as the unpleasant remedy for East Texas, various fields having been favored with increases of 2 to 20 cents a barrel for the higher gravity crudes, through upward extension of the gravity classifications, while some flat prices were raised also.

While the generally accepted East Texas posting now is $1.25 a barrel, as compared with the previous long established $1.35 posting, the prices now are better than before on the lighter oils of the Texas Panhandle, Southwest Texas, and the Texas Gulf Coast.

Formerly, all Texas oil above 40 gravity was unclassified and sold at the same price as 40 gravity crude in the various fields where produced. But Humble Oil & Refining Company effective August 29 further

graded the lighter oils in several districts, thereby raising the top prices in some fields 10 cents and in other fields 20 cents.

The gravity scale has been extended to 45 gravity and above and the top price is 10 cents higher in the Texas Panhandle, in West Central Texas, and at Conroe, Tomball, Raccoon Bend and Satsuma fields of the Texas Gulf Coast. The scale now goes up to 50 gravity and above and the top price is 20 cents higher for Refugio and Mirando grade crudes of Southwest Texas and for Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, and Turtle Bay fields of the Texas Gulf Coast. Pettus crude, Southwest Texas, formerly bearing a flat posting of $1.37 a barrel, was raised 5 cents.

* * *

Better Oil Rewarded

The action of Humble Oil & Refining Company in initiating the new grading of crudes from 40 to 50 gravity indicates that henceforth quality will carry more weight generally among purchasers.

The move also may be expected to add some strength to the gasoline market. For general adoption of the extended scale by purchasers would make it necessary for some independent refiners in Southwest Texas and along the Gulf Coast to boost their gasoline price quotations to compensate for the added cost of the raw material.

The added gravity classifications also may be expected to affect the increasingly important distillate business in Texas. Heretofore, independent operators have been marketing and absorbing most of the distillate, except that which has been going to Canada in tank cars, having been able to obtain the bulk of available supplies by keeping prices slightly above the top crude postings of the major companies. But under the new price postings, they will be obliged to bid against more buyers for supplies.

* * *

East Texas Price

In view of the stricter grading of oils in Southwest Texas and the Panhandle, it appears that a gravity scale eventually may be applied also to the East Texas field, although the common stream there is still around 39 gravity.

Water intrusion and the necessary treating of large percentages of the oil from sections of the field now yielding water naturally cuts down the gravity. Consequently, it is only reasonable to assume that buyers eventually will find it necessary to classify the crudes.

* * *

Gasoline Prices Sag

General conditions in the gasoline market apparently were more responsible than the East Texas crude price cut for the further sagging of gasoline prices early last week at Mid-Continent refineries and in the Chicago market.

In the East Texas refining district itself, where the crude cut might have been expected to be felt first, if at all, the established gasoline prices held unchanged. The cutting of ⅛ cent a gallon occurred at Oklahoma, North Texas, and West Texas refineries and among marketers in the Chicago area.

Natural gasoline prices remained generally unchanged in the Mid-Continent.

That the East Texas crude cut was not primarily responsible for further sagging of the gasoline quotations was indicated also by the fact the East Texas crude cut was at least partially compensated by the increases of 2 to 20 cents a barrel in prices of high gravity crudes in Southwest Texas, the Texas Gulf Coast, and the Texas Panhandle.

The only logical explanation for the gasoline price sagging was the fact that gasoline stocks still were larger than desirable, in view of continued lagging demand.

While the gasoline stocks on August 27 were 7.1 percent larger than one year previously, the demand for gasoline in September has been estimated by the Bureau of Mines at 6/10 of 1 percent less than the requirement in that month last year.

It is true that a material reduction of gasoline inventories in September is promised, but apparently, the markets are disposed to wait for improvement actually to occur before looking upon the prevailing prices as safe.

* * *

Fuel Prices Better

It is a little difficult to understand the fact that fuel oil prices last week showed improvement in some instances, in the face of the gasoline price weakening, and despite the present exceptionally large fuel oil inventories. In any event, the bottom prices on the lighter oils have been raised ⅛ to ¼ cent a gallon in the Chicago market, although the heavier fuel oils continued in light demand and sold off 5 cents a barrel in some instances, as industrial production generally continued comparatively low.

There were, however, some logical reasons for the strength of the light fuel prices, including the proximity of autumn and the large consuming season and the cessation of additions to fuel oil storage in the week ended August 27. Furthermore, the strict program of crude production allowables for September promises to result in curtailed refinery runs and reduced output of fuel oil. Consequently, a tighter fuel oil market in coming weeks looms as a possibility.

* * *

Operations and Stocks

The industry's operations have continued moderate as regards both crude production and refining, it is indicated by the latest weekly statistics on prevailing output and fluctuations in stocks.

United States crude oil production came down sharply in the past week, ended September 3, because of the reinstatement of Saturday shutdowns in Texas in addition to the Sunday closings.

In the previous week, ended August 27, national crude output averaged 3,388,500 barrels daily. That was 50,000 barrels a day less than the indicated market demand, as estimated by the Bureau of Mines, which took into account probable withdrawals from gasoline storage.

Meanwhile, refinery runs in the week ended August 27 were down 10,000 barrels from the previous week to an average of 3,255,000 barrels daily.

It was indicated, therefore, that the industry probably was able again to reduce crude stocks in the week ended August 27. Those stocks came down another million barrels in the week of August 20, having declined to 285,137,000 barrels, the lowest level for 15 years, or since 1923.

The gasoline stocks of the country were reduced another million barrels in the week ended August 27, in dropping to 71,754,000 barrels. At that level, they were only 7.1 percent larger than one year previously, although they still were larger than desirable, inasmuch as gasoline demand is running only about the same as last year.

The week of August 27 also brought an improvement in the fuel oil situation, additions to the stocks of those oils having been halted, following a long period of steady runs into storage. The gas and fuel oil stocks were reduced about 200,000 barrels, to 146,926,000 barrels, and at that level they were back within 31.1 percent of the level of a year previously. A week before, the supplies were 33.2 percent larger than at the corresponding time last year.

Faulted Structures

PLAY BIG ROLE IN

Coastal Production

By JOS. A. KORNFELD

Forty-Five Pools in Gulf Salt Dome Belt Cut by Major Faults

THE occurrence of major faulting in the Gulf Coast embayment on local structures is of direct commercial importance in that it sharply defines producing areas, guides development and points to possible extensions and prevents drilling of unnecessary dry holes. Faulting is indicated by repetition of key paleo markers, the absence of certain known markers, thinning of geologic section, and abrupt change in lithology.

A detailed survey by the author shows that, at present, there are 46 producing areas in 21 coastal counties and parishes where faulting plays a major role. Of these totals 38 pools are situated in 15 Texas counties, the remaining eight pools being in six coastal Louisiana parishes. Thirteen of the faulted areas have been uncovered on the Jackson or so-called "Conroe" trend, two piercement-type domes are severely affected by faulting, the remainder being deep-seated structures, a portion of which are known to be underlain by salt cores.

Commercial Importance

Commercial importance of faulting may be well illustrated by the fact that observance of a faulted condition at a Jefferson County, Texas, wildcat completed during 1937 led to the drilling of the discovery well of the Cheek field. Humble Oil & Refin-

LOCATION OF GULF COAST FAULTED DOMES

TEXAS

County	Pool	Remarks
AUSTIN	Raccoon Bend	Jackson trend—graben type
BRAZORIA	Hastings	Deep-seated dome—graben type
	Manvell	Deep-seated dome—crestal fault
	West Columbia	Piercement-type—flank fault
CHAMBERS	Anahuac	Deep-seated dome
	Cotton Lake	Crestal fault
	Seabreeze	Crestal fault
FT. BEND	Thompsons	Deep-seated dome
GALVESTON	Dickinson	Deep-seated dome—graben type
	High Island	Piercement-type graben on flank
HARRIS	Bammel	Structural fault
	Clear Lake	Deep-seated dome
	Fairbanks	Jackson trend—graben type
	Friendswood	Deep-seated dome
	Mykawa	Deep-seated dome—crestal fault
	Satsuma	Jackson trend—graben type
	South Houston	Shallow salt dome—flank faults
	Tomball	Jackson trend—graben type
JEFFERSON	Amelia	Deep-seated dome
	Cheek	Structural fault
	West Beaumont	Deep-seated dome
LIBERTY	Cleveland	Jackson trend—structural fault
	Hankamer	Deep-seated dome—salt core—crestal
	Hardin	Deep-seated dome
MATAGORDA	Buckeye	Structural fault
MONTGOMERY*	Conroe	Jackson trend—graben type
NEWTON	Call	Jackson trend—structural fault
ORANGE	Orange	Deep-seated dome—graben type
	Port Neches	Deep-seated dome—graben type
POLK	Ace	Jackson trend—structural fault
	Livingston	Jackson trend—graben type
TYLER	Spurger	Jackson trend
	Joes Lake	Jackson trend
WHARTON	Magnet	Structural fault
	Lakeview	Structural fault
	Five Corners	Structural fault
	Withers	Structural fault
	Blue Basin	Structural fault
Fifteen Counties	Thirty-Eight Pools	

LOUISIANA

Parish	Pool	Remarks
ACADIA	Bosco	Deep-seated dome—graben type
	Tepetate	Deep-seated dome—flank fault
BEAUREGARD	Bancroft	Jackson trend—structural fault
CALCASIEU	Gillis-English Bayou	Deep-seated dome—graben type
	Iowa	Deep-seated dome—horseshoe type
EVANGELINE	Ville Platte	Deep-seated dome
JEFFERSON DAVIS	Roanoke	Deep-seatd dome—horseshoe type
VERMILION	Abbeville	Deep-seated dome
Six Parishes	Eight Pools	

* Splendora gas structure on Jackson trend, now abandoned.

ing Company's Jefferson Land 1 cut a fault in the Oligocene series, and the knowledge of this condition coupled with other known subsurface information led to Glenn H. McCarthy's Broussard Trust 1, which was completed in January, 1938, in the Frio sand series, as the initial producer of a reserve estimated at 3,000,000 barrels.

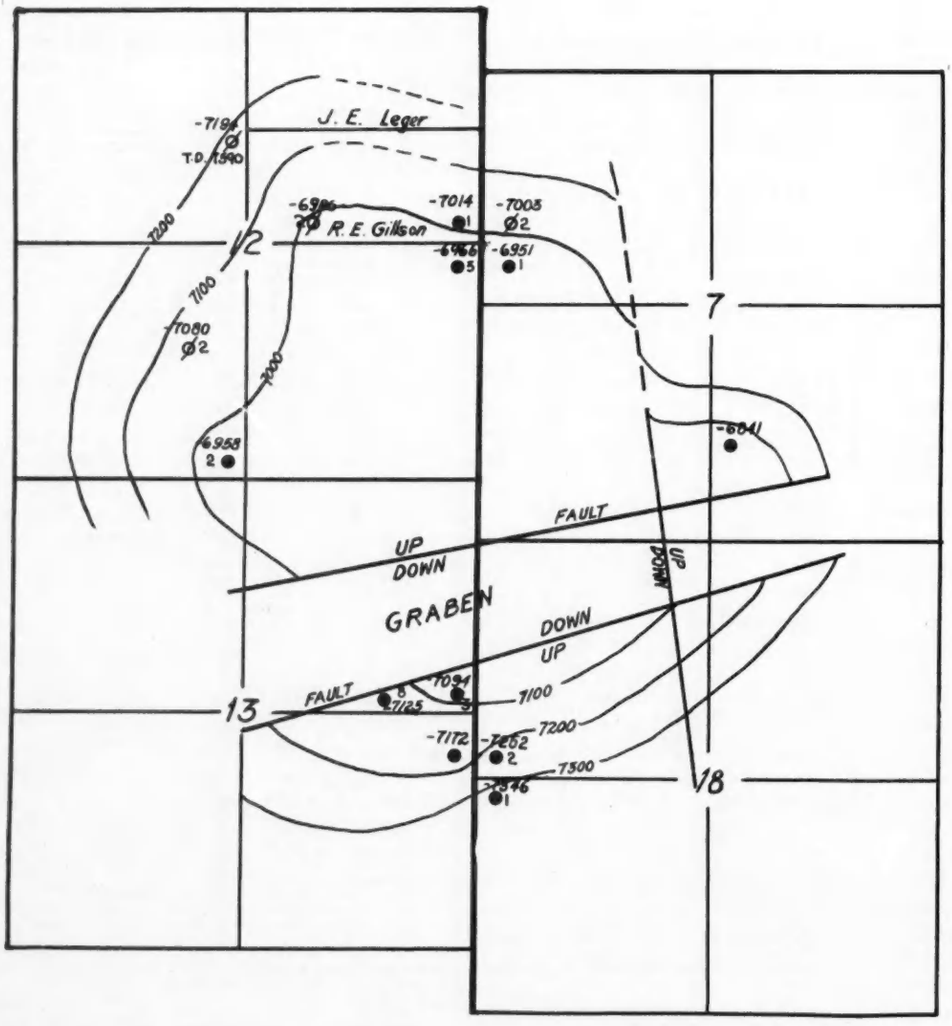
The responsibility for detection of faulting at wildcat wells and in the first few wells in a new field naturally is the province of the geologist. The importance of the recording of these data are of direct benefit to the land department and to key operating men. This is especially valuable to the land department with regard to acquisition of close-in acreage to a recent pool discovery with the danger present that the geological department may not have been consulted. The presence or absence of faults is not given enough consideration.

Early detection of the existence, character and direction of faults may save acquisition of barren acreage, and the drilling of dry holes although offsetting structurally-high, prolific producers. This is well exemplified by the fact that in the northern sector of the Anahuac pool of Chambers County, Texas, Mason & McCarthy's White 1 extension producer was offset later on the east by a dry hole of Gulf Oil Corporation's Knowles 1 abandoned on the downthrow side of a major fault.

Detection of faulting may be gained from studies of electrical survey logs and from rechecking reflection seismograms. On one particular prospect in Chambers County no faulting was indicated by the dip method of seismic interpretation of structure, but by the correlation method, a major fault was noted at four points where profiles crossed the fault line.

Comparison of fault patterns of deep-seated domes in producing areas with data obtained in the early development of a new field may prove of great value in projecting the probable fault pattern for the newly-discovered structure. In this respect it may be pointed out that the fault pattern of Mykawa in Harris County is similar to that of the Hankamer structure in southern Liberty County, although the latter is influenced by a series of sand lenses on the northwest plunge of the downthrown side. The "horseshoe" fault pattern of Roanoke dome in Jefferson Davis Parish, Louisiana, is of the same type as that of the Iowa dome in the same parish. Tomball, and Conroe exhibit the same feature of fault pattern. The "graben" type of faulting is well-exemplified as Port Neches, Orange, English Bayou-Gillis.

Yount-Lee Oil Company in its early development of the High Island (piercement-type) salt dome in northeastern Galveston County was caused considerable trouble by the occurrence of a graben on the south flank of this piercement type structure. Several wells were drilled in its area without encountering production. After the east fault was detected and delineated on detail production and geologic maps, and the graben proved, Yount-Lee ceased drilling in that sector, believing that the oil migrated to the upthrown segments on either side of the graben. Structural geologic detail saved more than one hundred thousand dollars in this case.



Geologic structure map of the Iowa deep-seated dome of Jefferson Davis Parish, Coastal Louisiana, illustrating the horseshoe-type graben fault pattern existent in other coastal areas. Contours are mapped on top of the producing sand.

Technological Aspects of Water Flood Curtailment

Bradford district research study indicates no appreciable quantity of oil need be lost because of the restriction of production from properties under water flood. Other interesting and valuable data also were procured, and are the subject of a series of articles, of which this is the second installment. In the preceding chapter the various means of curtailing wells were discussed. Case history studies of particular properties are presented in this part of the series, along with analyses of important data and conclusions.

By S. T. YUSTER, Associate Professor of Petroleum and Natural Gas Engineering, Water Flooding Research Laboratory, Mineral Industries Experiment Station, The Pennsylvania State College.

PART 2

Method of Data Analysis

In order to determine the effect a curtailment of production has upon a water flood development, data were collected from a considerable number of properties in the Bradford area and analyzed. The three general methods used in the analysis are as follows:

1. Comparison of actual recovery from the curtailed property with that predicted from core data.
2. Comparison of recovery from the curtailed property with that of a neighboring property which was not subject to a curtailment.
3. An examination of the continuity of a fused decline curve of a property which was under curtailment.

Description of Methods and Errors Involved

Because each of the methods has certain inherent errors, as many of the methods as possible were applied to the data from a given property for the purpose of cross checking. In some of the cases the data were extremely difficult to evaluate. The last general curtailment period in the Bradford field was during the period from June to December of 1930. At that time the taking of cores for guiding the development of a property was not looked upon with such favor as it is today. This was mainly due to the fact that the tests were not so refined as the present ones, and the data, therefore, had small use in prediction. The method of determining oil saturations may be cited as an example. A large number of saturation tests were made by the burning method, which usually gave abnormally high results. It is obvious that such data could not be applied to this analysis. Permeability was still in the development stage, and any data on this factor were obtained from cores taken since that time. The technique of water treatment was none too good, and much bad water was injected into the formations which reduced the ultimate recoveries by partially plugging the sand. Any comparison of actual recoveries with recoveries predicted from core data must be made with caution. Since the predicted

recoveries are usually based upon intensive laboratory and field flooding and those earlier floods were not developed as intensively as at present, it would be quite difficult to ascribe a loss in production to curtailment or lack of intensive development. Many of the early water flood properties used line and circle floods which were not so efficient as the present orthodox patterns.

Some of the possible errors in an analysis mentioned above apply to the second method as well. The control property which has not been curtailed, even though adjacent to curtailed one, may have different characteristics. It is hoped in such cases that the difference is very slight. The same is true of using core data taken on nearby properties.

The third method of analysis depends upon fusing the parts of the production curve before, during and after curtailment. It is based upon the following assumption: that the decline curve would show a smooth general trend if the production were not curtailed. Since the area underneath the decline curve is a measure of the total production, changing the shape of the area will not indicate any change in production. The area under that part of the curve representing curtailment is reconstructed so that its altitude is the average of the altitudes just before the application of curtailment and just after production resumes its normal course. The area just before curtailment, the new reconstructed area and the area after curtailment are placed next to one another (fused), and if the curve is continuous, indicating a normal type of decline, it may be safely assumed that there has been practically no loss of oil. In the cases to be considered, the method will be further clarified.

Even if the resulting decline curve is not smooth, it does not necessarily indicate that some production has been lost. A production curve is the summation of the productions from several permeability strata, and it is actually possible to get bumps in the curve while the production is sustained and normal. For example, the permeability profile may be such that the oil from a high permeability streak may be completely produced, and only water come from this stratum before the oil bank from the lower permeability stratum has even broken into the well. This condition will produce a bump in the production. This point will be made clearer if it is remembered that the production curve from a property is a combination of the production curves of all the strata. It is therefore surprising that the majority of decline curves are as smooth as they are.

The decline fusion method is not so reliable before and during peak production as it is on the downward portion of the decline curve. There is no way of extrapolating the production curve before and during peak production, as on the decline part of the curve, and therefore no definite conclusions may be drawn from a fusion. It may be rightfully claimed that the peak production would have been higher if curtailment had not been impressed upon the property even though the fused curve may be smooth. Under such conditions some other method of analysis must be used.

The area under the production curves may be obtained by several methods. One of the commonest instruments used for this purpose is the planimeter which measures the area in question by simply tracing its outlines. If such an instrument is not available, it is possible to measure the area by cutting out the section in question and weighing it on a sensitive balance. By then weighing some regular known area (and supposing that the paper has a uniform thickness and weight) it is possible to calculate the unknown area. Since the production curve is drawn on cross section paper, it is also possible to calculate the areas by counting squares. This latter method may not be so accurate as the others under some conditions, but it is very useful for approximate calculations.

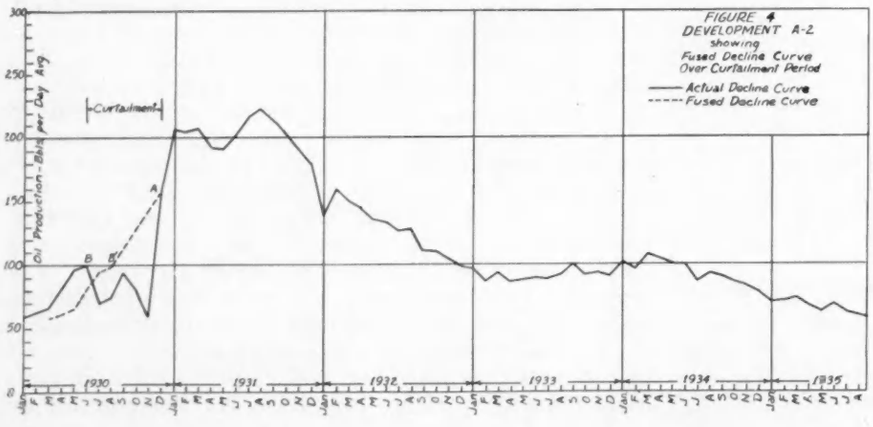
If the fused decline curve shows an abnormal downward drop, either a loss of oil is indicated or we must conclude that the production was deferred to the future. By comparing the area under the decline curve extrapolated from a point just before curtailment to the economic limit with the area under the actual decline curve, an estimate of the oil lost will be obtained.

Analysis of Field Data

Data on the following properties were obtained from several producers in the Bradford area and the results analyzed by the methods just described. Data were collected on all factors which would have any possible bearing at all on the production history of the properties and taken into consideration in the evaluation. Because of the detailed nature of the information, only those points which have the greatest effect upon the particular property will be mentioned. All the developments have been given code numbers so as to eliminate any possibility of divulging confidential information.

Developments A-2 and A-3

These two are neighboring properties and were curtailed by allowing a back pressure to build up in



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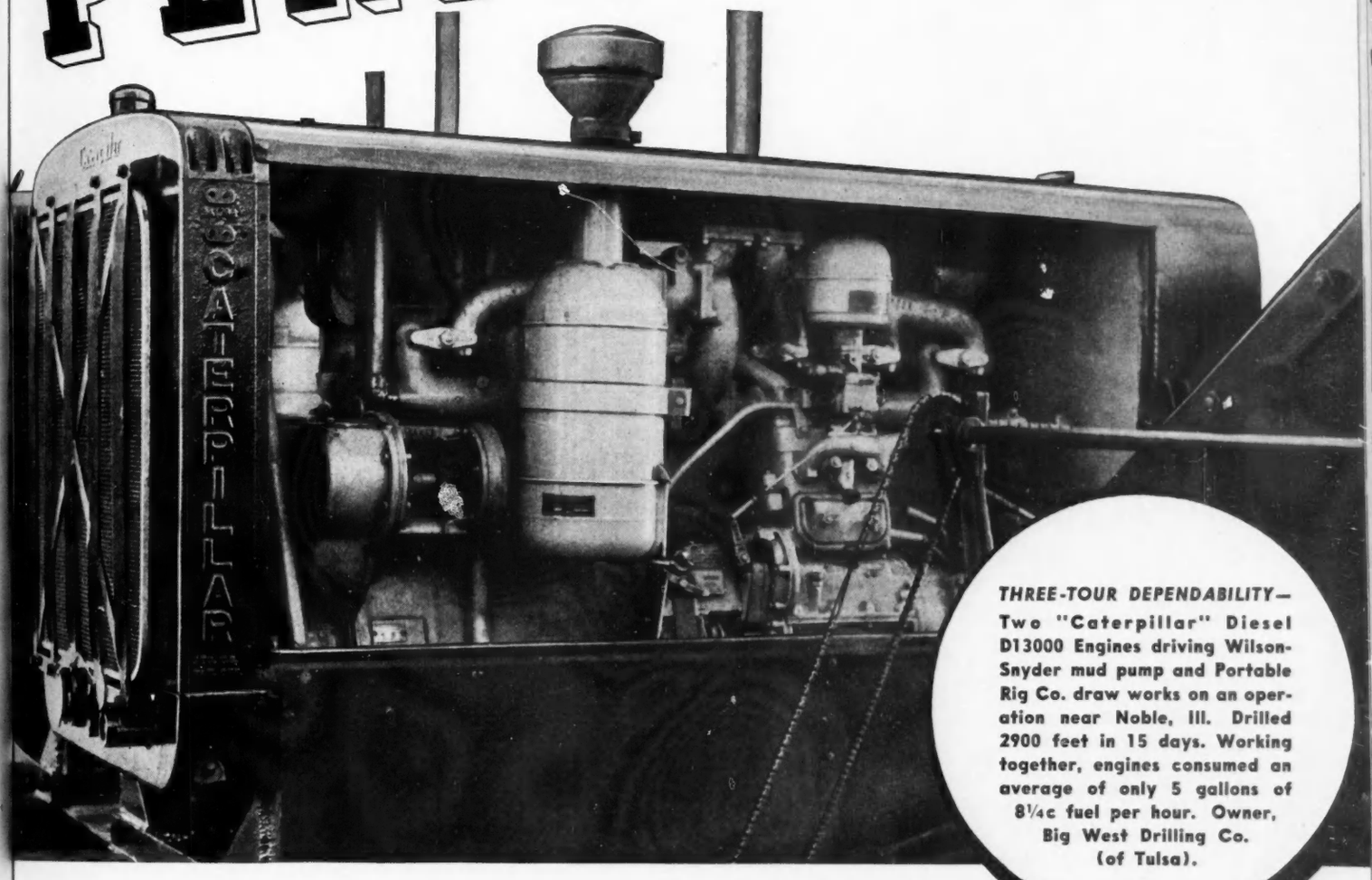

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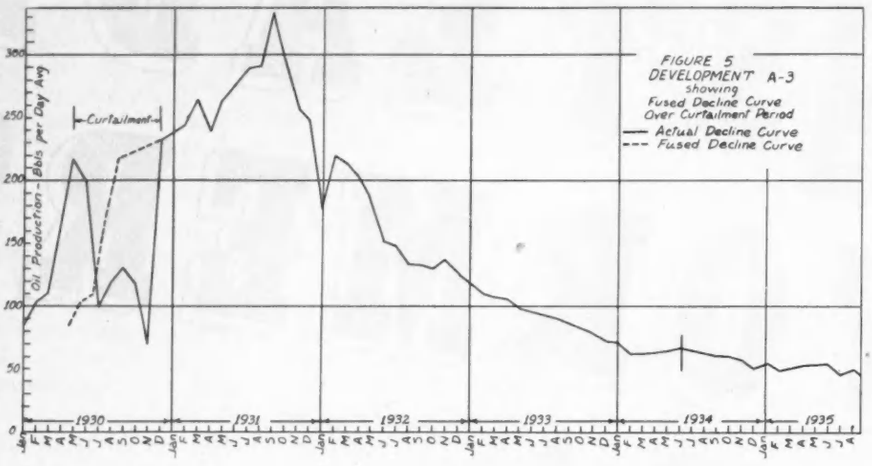


the producers and keeping the pressure constant on the inputs. The allowable oil and all water were pumped off the producers. Figures 4 and 5 are the production curves of the properties, and it can be seen that the fused decline curves in this case do not give any indication of the behavior. This is because the production was curtailed during the very early life of the flood which represents a region in the production curve where predictions are almost impossible. It is safest to reduce the rate of production during this portion of the life of the flood, as any possible losses (if at all) will be at a minimum.

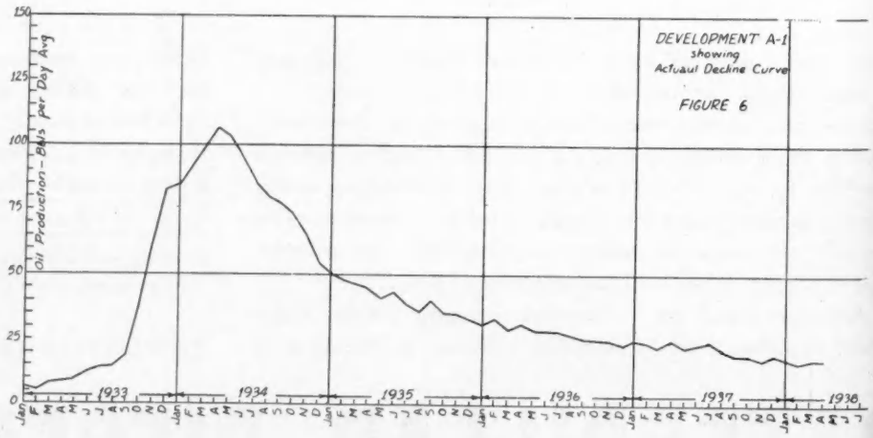
Fusion Method of Analysis

An examination of Figure 4 will explain more fully the method used in fusing the three portions (before, during and after curtailment) of the production curve. The area under the curve from **B** to **A** represents the oil production during the curtailment period. If no oil was lost during this period, the area when reconstructed and sandwiched between the two other parts of the curve should give the normal production curve of the property in question. The area under the points **B** to **A** is reconstructed into an equal area of trapezoidal shape, one of the parallel sides having a length equal to the distance **A** to the time axis and the other parallel side with a length equal to the distance from **B** to the time axis. This reconstructed area is placed next to the area representing the production after curtailment and the area representing the production before curtailment is shifted along the time axis until it is in contact with the reconstructed area. In this case the curve from the beginning to point **B** is shifted up to B′, which then places the early part of the production curve in the position occupied by the dotted curve. The fusion method also indicates that it took six months (time from **B** to **A**) under curtailment to produce an amount of oil which, under normal operating conditions, would require only four months (time from B′ to A). This means that the general production on this property was deferred two months. This is, of course, all based on the assumption that the decline curve is normal after curtailment.

Since a back pressure was applied in the producing wells, the gas energy was conserved, and it is to be expected that the response to a higher effective drive pressure, upon the resumption of normal production, would be rapid. An examination of the production curves bears this out, as the rate of oil production rises almost vertically when full pressure is reapplied.

The control comparison property for A-2 and A-3 is development A-1, the production curve of which is shown in Figure 6. The fused production curves of A-2 and A-3 and the curve of A-1 shows similar characteristics. All have a hump during peak production and the decline portion of the curves are all gentle. This is just confirmation of the fact that permeability profiles of the three properties are similar and that A-1 is therefore a valid control for A-2 and A-3.

The total production to date on A-2 is 5336 barrels per acre, on A-3 is 6636 barrels per acre, and on A-1 (the control property) extrapolated to the same production per acre per day as A-2 and A-3, is about 6100 barrels per acre. The spacing and pattern on A-2 is quite irregular, which perhaps partially ac-



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counts for the difference in recoveries between it and A-3. The production of A-1 is intermediate between A-2 and A-3. Properties A-1 and A-2 are adjacent, but A-1 and A-3 are about 1500 feet apart. It is, of course, quite possible that the sand conditions and saturations may vary to the extent of giving these differences.

Four cores were taken on, and in the vicinity of, these developments. The saturations on one of the cores were determined by the burning method, which gave saturations which were much too high. One core was taken on property A-1, but it showed an abnormally high content of water and low oil saturations. The recovery per acre predicted from the core analysis was only about 3000 barrels. All of this evidence points to a subsurface flood on a part of A-1. A core taken between developments A-2 and A-3 gave saturations upon which was based a prediction of about 5800 barrels per acre recovery. Part of this core was lost, so that some judicious estimating was involved, but the value is intermediate between the actual recoveries of A-2 and A-3. The saturations on a core taken near the property line of A-3 gave a predicted recovery of 5000 barrels per acre. This is considerably lower than the recoveries on A-3.

On the basis of comparisons between the curtailed and control properties and the recoveries predicted from cores, it is felt that practically no oil was lost because of the reduction in production rate. This is undoubtedly due in part to the fact that the curtailment period was in the early life of the flood when pressure gradients are abnormally high and therefore the flooding pressures are not in the critical range. In addition, any production during the early life of the flood is from the more permeable strata which are capable of withstanding lower effective driving pressures and still remaining above the critical pressure range (see previous discussion regarding this point).

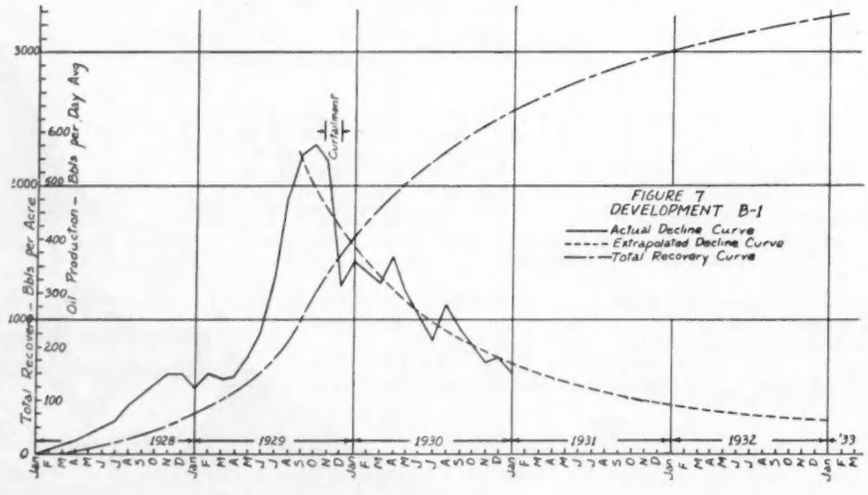
Development B-1

This property was curtailed by shutting off the inputs and pumping off the producers. The production curve is shown in Figure 7. Since there was no back pressure on the producing well, the reservoir energy in the form of dissolved gas must have been at least partially dissipated. An examination of the curve actually indicates this. The curtailment period was from October 25 to December 1. Upon the reapplication of pressure, the curve continues to show a general upward trend until April. This would indicate that it required about four months to build up the energy of the reservoir to approximately its former condition. This represents a deferring of production of about two months.

The extrapolated total production on this development (complete data were not available) is about 3400 barrels per acre. Since the curtailment is on that part of the production curve which does not indicate trends, the curve itself cannot be used to prove or disprove any loss of oil. A core was taken on the property at a time when laboratory tests were still in the experimental stage, and the core only served to satisfy the curiosity of the producer as to the appearance of his sand which would include a visual test of saturations and permeability. The only method open for analyzing the data from B-1 was, therefore, a nearby control property.

The closest control property available was development C-1, which, unfortunately, was at a distance of about 2500 feet from B-1. Despite the distance and the great possibility of changes in both saturations and sand characteristics, it will be taken for comparison. Property C-1, the control, produced 6900 barrels per acre, while B-1 yielded 3400 barrels per acre. Although this may seem to be an enormous discrepancy at first glance, the very important fact must be kept in mind that C-1 has a sand thickness of 35 feet; B-1 has only 20 feet of sand. If 6900 is multiplied by the ratio of 20 to 35, the production of property C-1 would be obtained if it had the same type of production as B-1. This figure is 3940 barrels per acre, which still leaves a deficiency of about 500 barrels an acre. At first glance this appears to be a loss, but before making any statements, a few more facts must be taken into consideration. In 2500 feet the sand pinches out from 35 to 20 feet, which indicates the possibility of lensing, a factor tending to reduce yields. B-1 was not developed so intensively as newer developments, and therefore some oil may have been lost in this way. In addition, no treatment was given the water, and although it was called good, there is the possibility that some plugging took place to decrease the yield of oil.

If it is supposed that the sand on development B-1 is just as rich in oil as C-1 (keeping in mind that this does not necessarily hold over a distance of 2500 feet) and that the factors just considered cannot account for an appreciable fraction of the 500 barrels per acre deficiency, then oil was lost. The flooding pressure gradients under this method of curtailment would be very low when using this method (see previous discussion), which would not only mean a decrease in recoveries on that part of the sand over which the flood passed, but would also cause some fingering of the flood. The gas coming out of solution would result in Jamin action, which would fur-



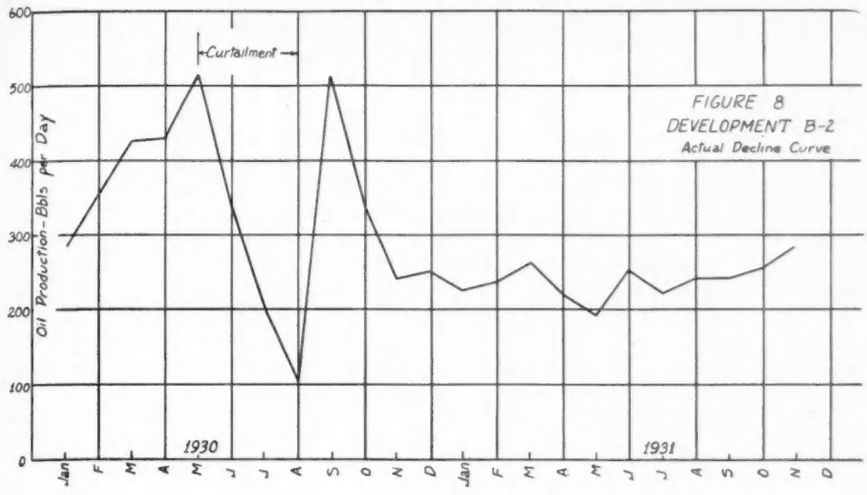


Figure 9. The curtailment period was during the very early life of the flood, which is the most favorable time. However, the curtailment method was not the most advantageous, as the energy of the formation was dissipated. The shutdown period was from July to September, 1934, two months' elapsed time. However, it took four months to bring the property back to normal operating conditions, because the energy, in the form of gas in solution, had to be built up in the formation once more.

In fusing the three parts of the production curve, the reconstructed portion was made from the total production from the time of shutdown to the return of normal production. This is a four-month longer period than the actual shutdown, but it is felt that the actual production was below normal during that time and may therefore be considered as the idealized curtailment period. This behavior is due to the method of curtailing. The fused production curve appears normal, but as has been pointed out previously, a shutdown during the very early life of a property does not lend itself with any exactness to a study by the fusion method. However, the fused curve does indicate that normal production was deferred for three and a half months, as this was the shift necessary along the time axis to bring the three parts of the curve into coincidence for fusion.

The predicted recovery on this development based upon a core analysis is 6000 barrels per acre. The actual recovery to date is 6108 barrels per acre and the property is still producing about a barrel per day per acre. It may therefore be concluded that practically no oil was lost by reason of the shutdown period.

ther aggravate this condition. These factors combined would all tend to reduce the yields. Even though the method of curtailment used offers the maximum opportunity for losses in production, it is very doubtful that such losses were in the neighborhood of 500 barrels per acre. Instead, it is believed that the discrepancy is due to the choice of such a rich control property and that the sand does change between B-1 and C-1.

Development B-2

This property was curtailed by shutting off pressures and gradually discontinuing all pumping. The curve for this property is given in Figure 8. The curtailment period was during the peak production period of the flood and therefore a fusion curve would be of little use in evaluating the data. A control property was available (development B-3) and this will be compared with B-2.

Even though pumping was discontinued on B-2, large quantities of oil were available, indicating that there was a head of oil in the producers. There is a loose so-called gas sand at the top of the producing horizon which is packed off in the inputs but left exposed in the producers. Any head of oil in the producer would cause it to enter this loose sand with considerable rapidity, which would mean a loss in the ultimate production. The water used in this development was slightly corrosive and might therefore reduce the conductivity of the sand with a corresponding reduction in oil production.

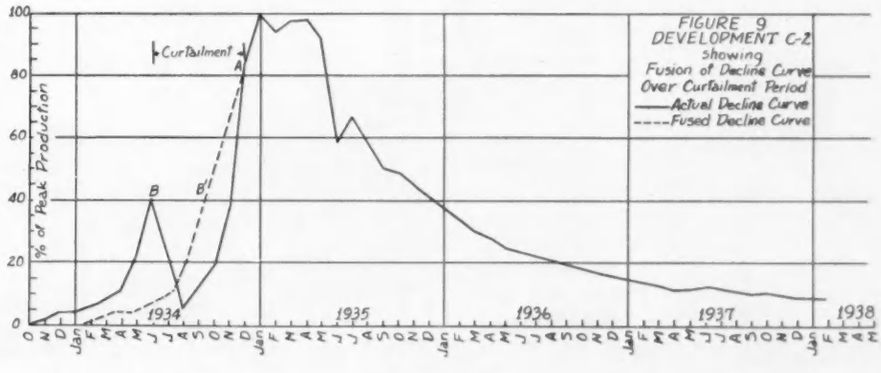
The production from B-2 was 3200 barrels per acre, while the extrapolated production from the control development B-3 was 4900 barrels per acre. This is a difference of 1700 barrels per acre, which is large. It is felt that the large difference in production is a combination of losses in the thief sand and the application of intensive development practices to the control property which were unknown when property B-2 was developed.

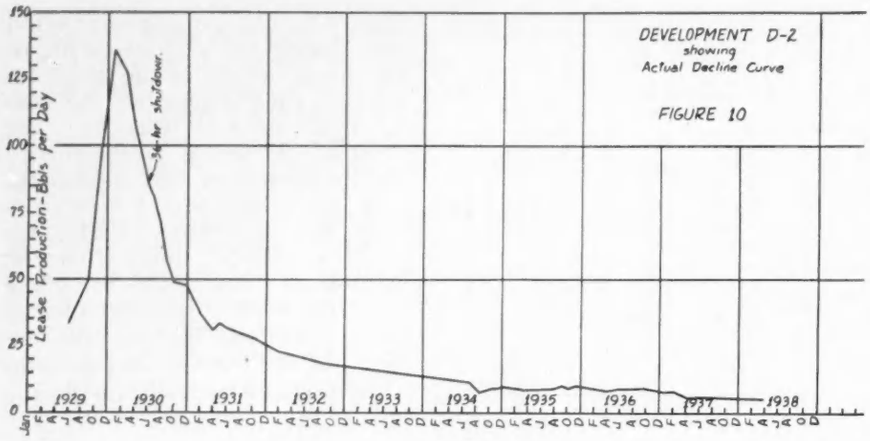
Development C-2

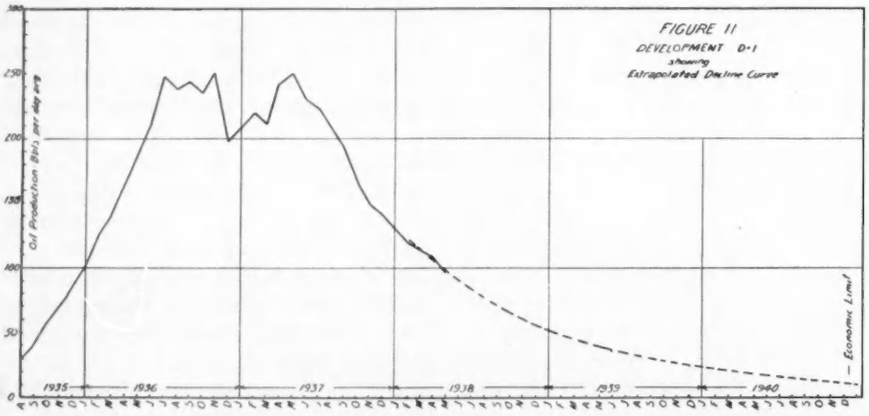
The data on development C-2, which was curtailed by shutting off the input wells and pumping all the producers, are shown in

Development D-2

This property, the production curve of which is shown in Figure 10, was subject to a 36-hour shutdown due to an equipment breakdown. The input wells were shut off and all pumping stopped. The operator of this development felt that oil had been lost because of the shutdown and the data were therefore analyzed. An examination of the production curve shows it to be quite normal; in fact, the downward slope after the shutdown is less steep than the







period preceding it. Since the decline from peak production is very rapid, the rate would drop appreciably from day to day, a condition which could easily be mistaken for an adversely affected sand.

The production to date on this development is 6300 barrels per acre, while that on a neighboring control property D-1 (see Figure 11) on which there were no shutdowns, gave an extrapolated production of 5900 barrels per acre. In view of the fact that the decline curve on D-2 is normal and that the control property yielded lower recoveries than D-2, it is felt that no oil was lost because of the shutdown.

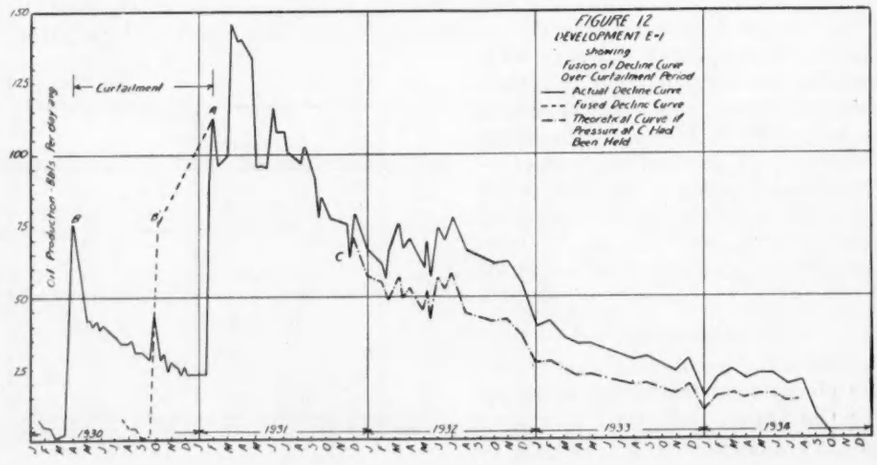
Development E-1

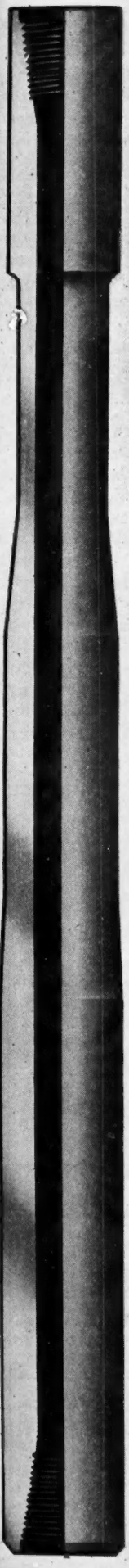
The property was curtailed by keeping the pressures constant on the input wells and enough pumped off the producers to maintain the quota and keep water off the sand face. The production curve is shown in Figure 12. A fusing of the three portions of the curve indicates that production was deferred for six months because of the curtailment. The production curve shows a very rapid (almost vertical) pick-up in production upon reapplication of normal operating conditions. This is in agreement with previous deductions which indicated that those methods of curtailment which conserved the reservoir energy by holding the gas in solution responded more quickly to the speed-up in production.

The very steep approach to peak production is indicative of a high permeability stratum which is in agreement with the core data from a neighboring property. The more gradual decline away from the peak would be caused by lower permeability sections because of their slower production rate. The choppy character of the curve gives further support to the fact that production is coming from a permeability profile which shows jumps in the permeability range.

The curve from point **C** onward has been corrected for the pressure increases by multiplying the existing rate by the ratio of the original to the new effective driving pressure. The corrected curve is shown dotted. If the curve from the peak to **C** is extrapolated it will come under this corrected curve, probably indicating that an increase in ultimate production resulted from the increase in pressure Another possibility is, of course, that another permeability streak broke into the producing well, but it would be a remarkable coincidence if this were to come at the exact times when the pressure was increased. In fact, the pressures used up to point **C** are about 33 percent lower than those used shortly after that. This increase in ultimate production indicates that the most intensive methods were not used in the early part of the development, and that, therefore, some oil may have been lost because of this reason. If it is remembered that almost half the production was at the lower pressure gradients, it can be seen that there is a possibility of a loss of an appreciable amount of oil. Since a large portion of the sand is of a low permeability, it would be most sensitive to a pressure change.

The curtailment was during the early life of the flood, when pressure gradients are the highest, and it would be expected that losses would be at a minimum. On the other hand, the very heterogeneous





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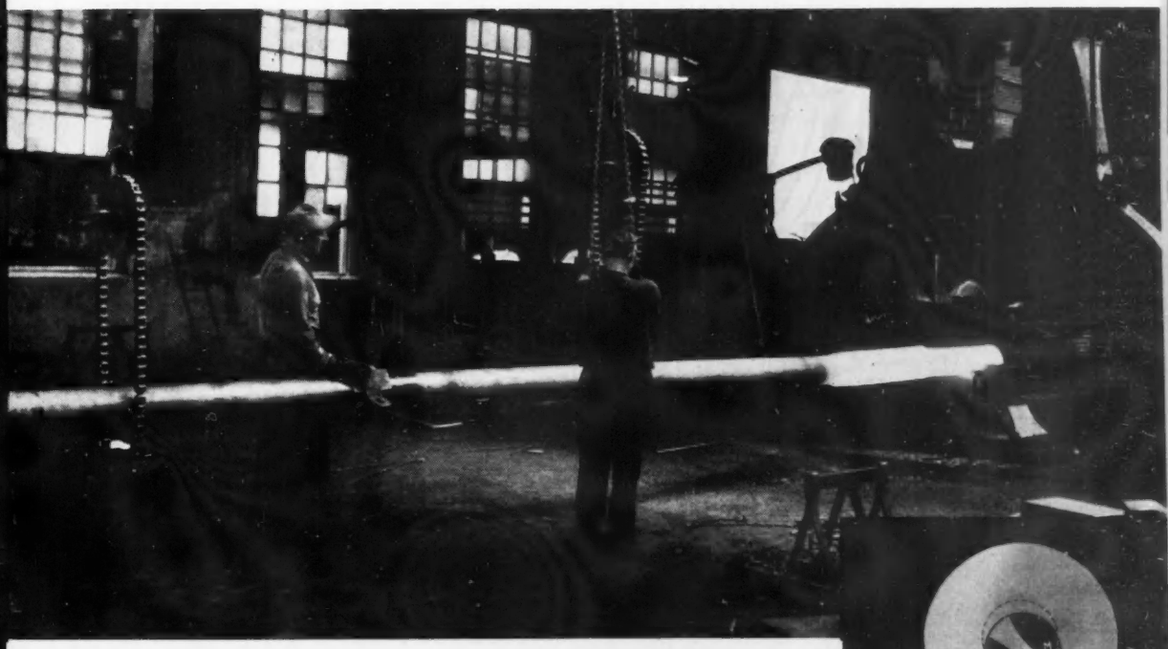

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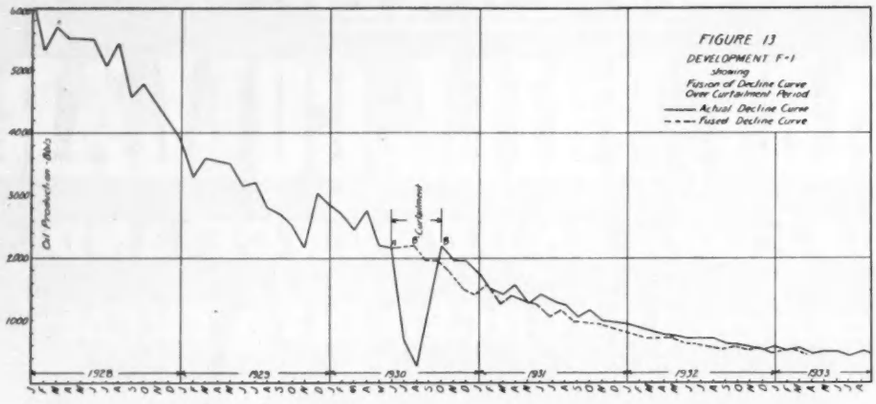


permeability profile would result in high water-oil ratios because of excessive by-passing down the loose strata and consequently the economic life of the property would be shortened.

The actual recovery per acre was 2160 barrels, while the predicted recovery based upon core analysis was 2340 barrels per acre. This latter figure is based upon intensive development which was not the case over all the life of the flood. Couple all these reasons with the fact that untreated ground water was used in flooding with the possibility of plugging up the low permeability sections (as much as seven feet of sand out of 30 is below one millidarcy) and that a thief sand was exposed in the producers, and the agreement between the actual and predicted recovery is excellent. Considering all the conditions present, it is very doubtful whether any oil was lost at all by reason of the curtailment program.

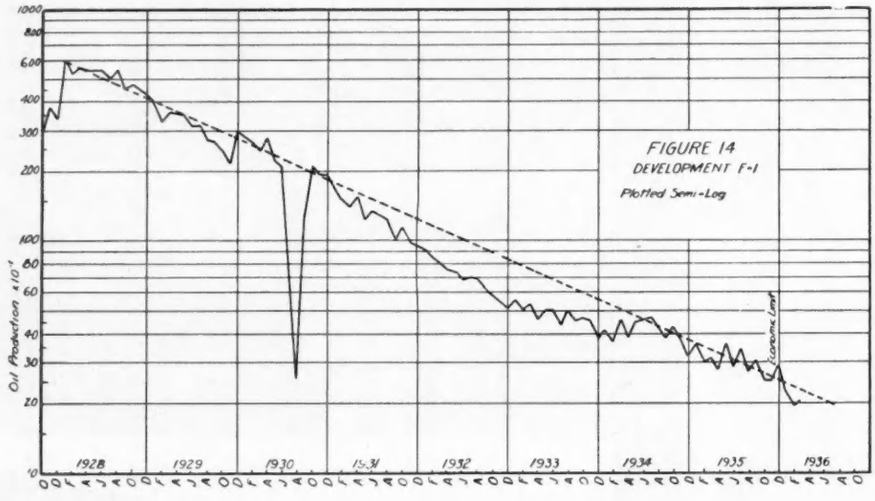
Development F-1

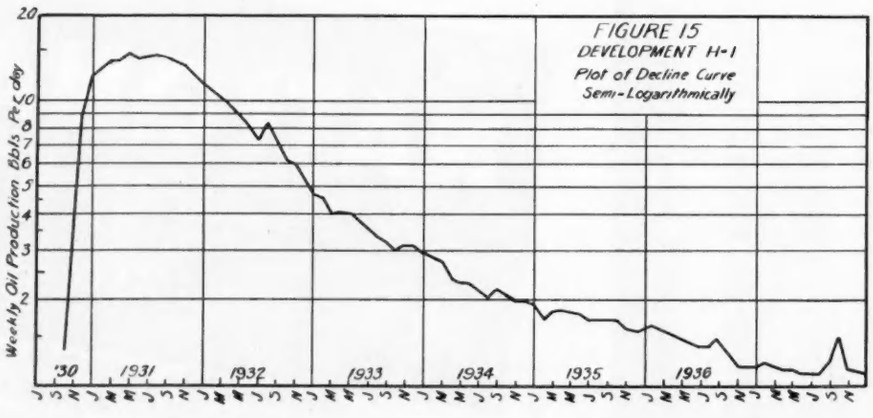
This property, whose production curve is shown in Figure 13, was curtailed by shutting off the inputs, and practically no oil was removed from the producers. The fused decline curve is perfectly normal, and since curtailment took place on the decline portion of the production curve where indicated trends are most likely to continue, it is good evidence for no loss of oil due to the shutdown. Since some head of oil was built up in the producers, the energy of the formation was conserved, and since there was practically no movement of the flood front under the lower pressure gradients, no loss of oil would be expected. Production was, however, deferred for two months.

The input water was not treated, but since this was true for the complete life of the flood, any possible adverse effects would not be indicated on the production curve. However, it may have reduced the ultimate production. The Bradford first and second sands were exposed in the producing well, but the conditions of curtailment and the continuity of the decline curve rule out the possibility of a loss through such a mechanism. Although the total production on the property is known, no core was taken, and therefore a comparison is impossible.

Extrapolation Methods

Some producers base their predictions on the behavior of a property on a semi-logarithmic extrapolated decline curve. In this method the logarithm of the differential (non-cumulative) production is plotted against time. Two assumptions are involved in such a calculation: first, that the behavior of the property in the extrapolated part of the curve will be identical with that represented by the actual curve, and, second, that the relationship between the logarithm of the production and the time is linear. Since the over-all production curve on any property is made up of the individual production curves of the various strata, the actual decline curve must not necessarily continue along the trend indicated in any range and therefore the first assumption would not necessarily hold. If the permeability were uniform or if the permeability distribution were gradual, such a behavior might hold; however, with a sand having a choppy permeability distribution (see development E-1) extrapolation may be a little uncertain. In order to extrapolate any series of points, some relationship must be found between the variables so that they





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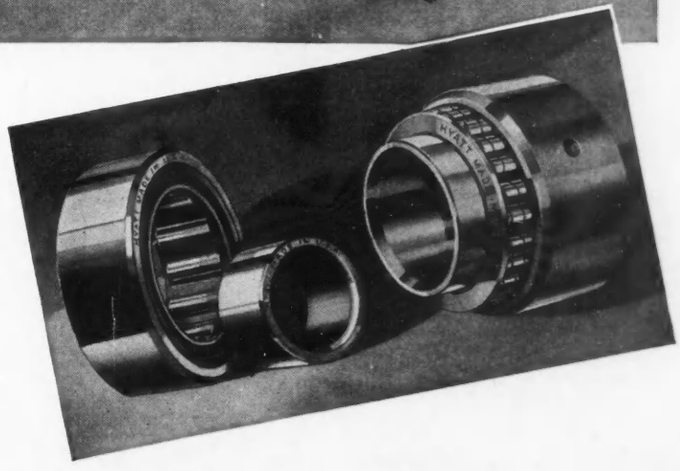

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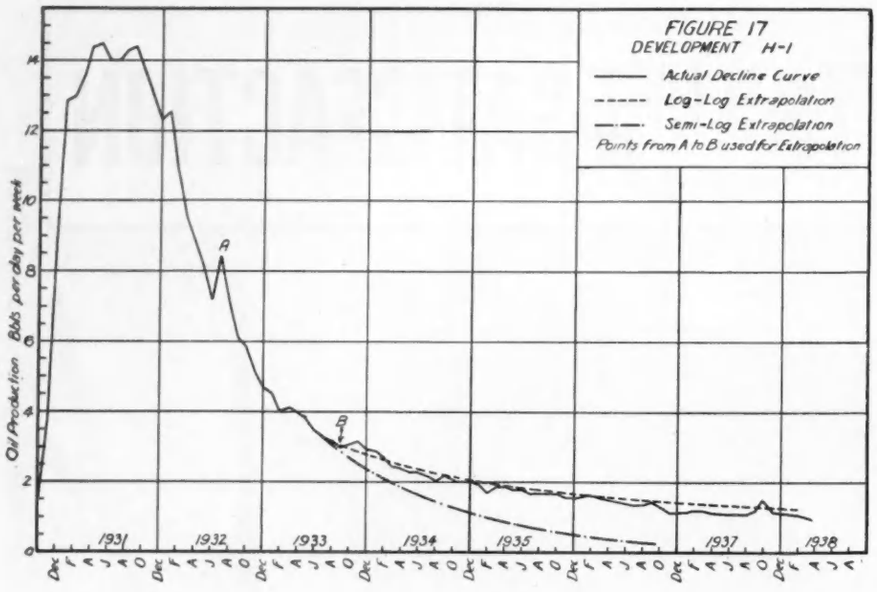


may be plotted linearly (graph is a straight line). The second assumption, which involves a linear relationship between the log of the production against time, may hold for some properties which it is felt must be special cases, but it cannot hold for all properties.

This semi-logarithmic method of extrapolation has been used as a basis of predicting recoveries and the difference between it and the regular production curve has been designated as loss. This is true in the case of F-1. Figure 14 shows the actual production curve plotted on semi-log paper with the upper part of the curve extrapolated as a straight line. The difference in the area under the two curves has been interpreted as a loss.

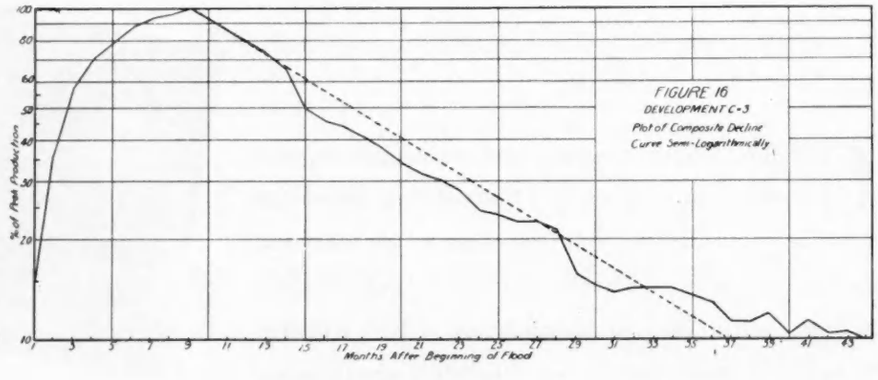
If this is true, then a regular production curve from a property which has not been curtailed should be approximately linear on semi-log paper and therefore no losses indicated. Development H-1 (see Figure 15) represents the production on a non-curtailed property plotted on a semi-log paper. No possible straight line could be drawn through it, and a straight line placed on the graph would indicate a loss. Figure 16 for property C-3 is the semi-log plot of a composite group of properties, and again a straight line cannot be drawn through the graph. It may be concluded, therefore, that the semi-logarithmic method of extrapolating is not mathematically exact for all cases and may not be used as evidence for losses during curtailment.

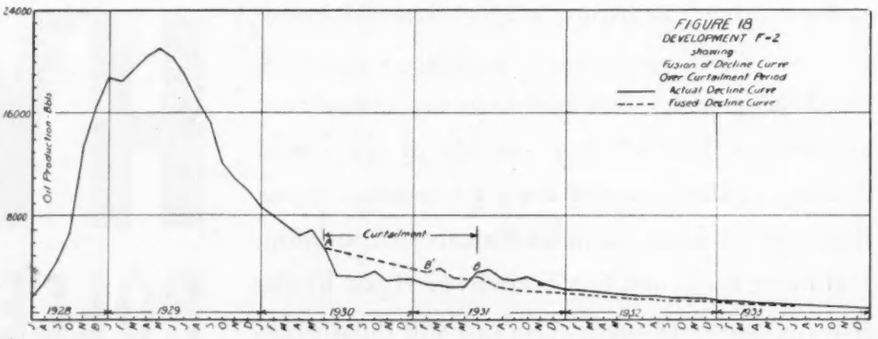
Even the best of extrapolation methods will give the best prediction only if a considerable portion of the production curve is already known. One of the best methods of extrapolation involves plotting the points on log-log paper (the logarithm of the production versus the logarithm of the time) and by the addition or subtraction of a suitable constant (determined by trial and error) to the time value of all the points, make them fall on a straight line.

The production curve of development H-1 was subjected to such an extrapolation in which the portion of the curve from **A** to **B** was used. Point **A** was chosen as the beginning because one new well came into production at this point and the data before **A** would lack this contribution. Figure 17 shows how accurately the extrapolated curve (log-log) agrees with the actual. For purposes of comparison the semi-log extrapolation is also shown, and it can easily be seen that the log-log extrapolation gives a much better prediction. The same development plotted on semi-log paper (see Figure 15) does not show any straight line portion. The method just described is much more flexible for analyzing data than the semi-log method as a constant, which includes in it the general characteristics of the parent curve, is contained in the final equation.

Development F-2

The production curve of this property is shown in Figure 18. Curtailment was accomplished by reducing the pressures on the inputs and pumping off all the production. The fused decline curve appears to be normal and shows that production was deferred for four months because of the curtailment. The core data on this property are probably inaccurate as the average saturation in the region are around 60 percent. This is abnormally high and may be due to the





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Aluminum Company of America.
American Askania Corporation
American Cable Division,
American Chain & Cable Co., Inc.
American Hammered Piston Ring
Division, Koppers Company.
American Iron and Machine Wks. Co.
American Lubricator Company.
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American Steel Derrick Company.
B. K. Appleman.
Armstrong Bros. Tool Co.
Asbestos Manufacturing Co.
Athey Truss Wheel Co.
Atlas Engineering Works.
Atlas Imperial Diesel Engine Co.
C. L. & W. W. Auer.
Axelson Manufacturing Company.

B

Baash-Ross Tool Company.
Baker Oil Tools, Inc.
Baldwin-Duckworth Chain Corp.
Barber-Greene Company.
Barnes Bit Sales Co.
Baroid Sales Department,
National Lead Company.
The Barrett Company.
Bartlett Hayward Division,
Koppers Company.
The J. B. Beaird Corporation.
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Beaver Pipe Tools, Inc.
Beck Engineering Combustion
Kompany.
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Braden Steel Corporation.
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Brauer Machine & Supply Company.
The Brewster Company, Inc.
Bridgeport Machine Company.
Broderick & Bascom Rope Company.
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Browning-Ferris Machinery Co.
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Bucyrus-Erie Company.
The Buda Company.
Buffalo Bolt Company.
Bullum, Inc.
The Bunting Brass & Bronze Co.
Butler Manufacturing Company.
Byron Jackson Co.

C

Calmec Manufacturing Co., Ltd.
Cameron Iron Works, Inc.
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Carson Machine & Supply Co.
J. I. Case Company.
Caterpillar Diesel Engines,
Caterpillar Tractor Co.
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Fred E. Cooper.
The Cooper-Bessemer Corporation
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Crane Co.
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D

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Dean Oil Tool Company.
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Dodge Manufacturing Corporation.
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E

Eason & Theroff Tool Company.
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E. H. Edwards Company.
Elastic Stop Nut Corporation.
Elliott Core Drilling Company.
Emsco Asbestos Co.
Emsco Screen Pipe Company.
Endura Manufacturing Corporation.
Erickson Manufacturing Company.
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F

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Fairbanks, Morse & Co.
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Farrel-Birmingham Company, Inc.
The Edwin H. Fitler Co.
Fluid Packed Pump Co.
Foote Bros. Gear & Machine Corp.
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Franks Mfg. Corporation.

G

Gardner-Denver Company.
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Gas Lift Corporation.
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Gatke Corporation.
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Great Lakes Steel Corporation.
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Grove Regulator Company.
The Guiberson Corporation.
Gulf Coast Machine & Supply Co.
Gulf Engineers, Inc.
Gulf Publishing Company (Oil Books)
Gulf Publishing Company
(Oil Company Forms)
The Gwilliam Company.

H

Hacker Machinery & Supply Co.
Hall & Lowrey, Inc.
Halliburton Oil Well Cementing Co.
Hamer Oil Tool Co.
Hanlon-Waters, Inc.
Harnischfeger Corporation.
Harrisburg Steel Corporation.
Hause Valve Company.
Haynes Stellite Company.
Hazard Wire Rope Division,
American Chain & Cable Co., Inc.
Hercules Motors Corporation.
Hercules Tool Company.
Hinderliter Tool Company.
Homco Cutting & Fishing Tool
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Hopper Machine Works, Inc.
The Charles N. Hough Mfg. Co.
Houston Engineers, Inc
Houston Oil Field Material Co.
Houston Ready-Cut House Co.
Howard Smith Company.
Hughes Tool Company.
Hunt Tool Company.
Hyatt Bearings Division,
General Motors Corporation.
Hydraulic Pump Company.
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I

The Inferno Company.
Ingersoll-Rand Company.
The International Derrick &
Equipment Co.
International Harvester Company.
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International Resistance Company.
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J

D. O. [illegible] Manufacturing Co.
Jarecki Manufacturing Company.
Jefferson Union Company, Inc.
The Jeffrey Manufacturing Co.
Jenkins Bros.
Jensen Brothers Manufacturing Co.
Johns-Manville.
M. O. Johnston Oil Field Service Corp.
M. O. Johnston Oil Tools, Inc.
Jones & Laughlin Steel Corp.
The Joyce-Cridland Company.

K

Kane Boiler Works, Inc.
Kerotest Manufacturing Company.
Kibele Manufacturing Company.
Kinzbach Tool Company.
Koenig Iron Works.
Koppers Company.

L

Lamb Piston Sales Company.
Laminated Shim Company, Inc.
Lane-Wells Company.
Larkin Packer Company, Inc.
Layne and Bowler Company.
Le Bus Rotary Tool Works.
Le Roi Company.
A. Leschen & Sons Rope Co.
The Lincoln Electric Company.
Link-Belt Company.
Louisiana Supply Company.
Lowell Wrench Company.
Lubrikup Company, Inc.
Lucey Export Corporation.
Lucey Products Corporation.
The Ludlow Valve Mfg. Co.
Lufkin Foundry & Machine Co.
The Lufkin Rule Co.

M

MacClatchie Manufacturing Co.
D. S. Mair Machinery Corp.
Maloney Tank Mfg. Company.
M & H Valve & Fittings Company.
M & V Tank Company.
Manzel Brothers Company.
Marion Machine, Foundry & Supply
Co.
Martin-Decker Corp.
McCord Radiator & Mfg. Co.
McCullough Tool Co.
J. B. McEvoy & Company.
The Medart Company.
Merco Centrifugal Co.
Merco-Nordstrom Valve Company.
Merla Tool Co.
Geo. L. Mesta & Co.
Midco Pumps, Inc.
Midco Tool & Supply Co.
Mid-Continent Supply Co.
Midwest Piping & Supply Co., Inc.
Miller Oilfield Equipment Company.
The Safety Supply Company.
Minneapolis-Moline Power Implement
Co.
Mission Manufacturing Company.
The Moon Manufacturing Co.
Lee C. Moore & Company, Inc.
Morse Chain Company.
Mosher Steel Company.
Motor Improvements, Inc.
Muskogee Iron Works.

N

W. C. Nabors Company.
National Lead Company,
Baroid Sales Department.
National Tank Company.
Natural Gas Equipment, Incorporated.
Naylor Pipe Company.
The New Deal Specialty Co.
Norma Hoffmann Bearings Corp.
W. C. Norris Manufacturer, Inc.
Northrup Equipment Company.
Novo Engine Company.

O

Walter O'Bannon Co.
Oil Center Tool Company.
Oil City Brass Works.
The Oil Country Specialties Mfg. Co.
The Oil Well Improvements Co.
Oil Well Manufacturing Corp.
O-K Machine & Manufacturing Co.
Oklahoma Rig & Supply Co.
Osage Metal Company, Inc.
The Oster Manufacturing Co.
Oster-Williams.
Otis Pressure Control, Inc.
Owens-Illinois Glass Company.

P

P & D Specialty Mfg. Co.
Pacific Pump Works.
The Parkersburg Rig & Reel Co.
Patterson-Ballagh Corp., Ltd.
Pelican Well Tool & Supply Co.
Penberthy Injector Company.
Perkins Cementing, Inc
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R

R-F Electrical Manufacturing Co.
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S

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Shaffer Tool Works.
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Stanciff Screen Pipe Company.
Standard Brake Lining Company.
Standco Bolt Company.
The Star Drilling Machine Co.
Star Manufacturing Company.
The Staytite Company.
Stefco Steel Company.
Strau-Steel Division,
Great Lakes Steel Corp.
The Sullivan Company.
Sullivan Machinery Company.
Surface Equipment Co.

T

Technical Oil Tool Corp., Ltd.
Templeton, Kenly & Co.
The Texacone Company.
Texas Iron Works, Inc.
Texas Rubber & Specialty Corp.
Texas Steel Company.
Thermoid Rubber Company.
Thornhill-Craver Company, Inc.
The Timken Roller Bearing Co.
The Tuscaloosa Iron Works Co.
The Toledo Pipe Threading Mach. Co.
Trackson Company.
Trec-O-Lite Company.
The Triad Products Co., Inc.
Tulsa Winch Manufacturing Co.
Twin Disc Clutch Company.
Twin-Seat Valve Company.
Tyson Roller Bearing Corp.

U

Union Wire Rope Corporation.
Unit Rig & Equipment Company.
United States Heat Treating Co.
United States Motors Corporation.
United States Rubber Products, Inc.
Universal Atlas Cement Co.

V

The Vapor Recovery Systems Co.
Vernon Tool Company, Ltd.
Volcano Burner Company.
Vortex Manufacturing Company.

W

W-K-M Company, Inc.
John Waldron Corporation.
Washington Engine & Pump Co.
Waukesha Motor Company.
Weber Engine Company.
Wedge Protectors, Inc.
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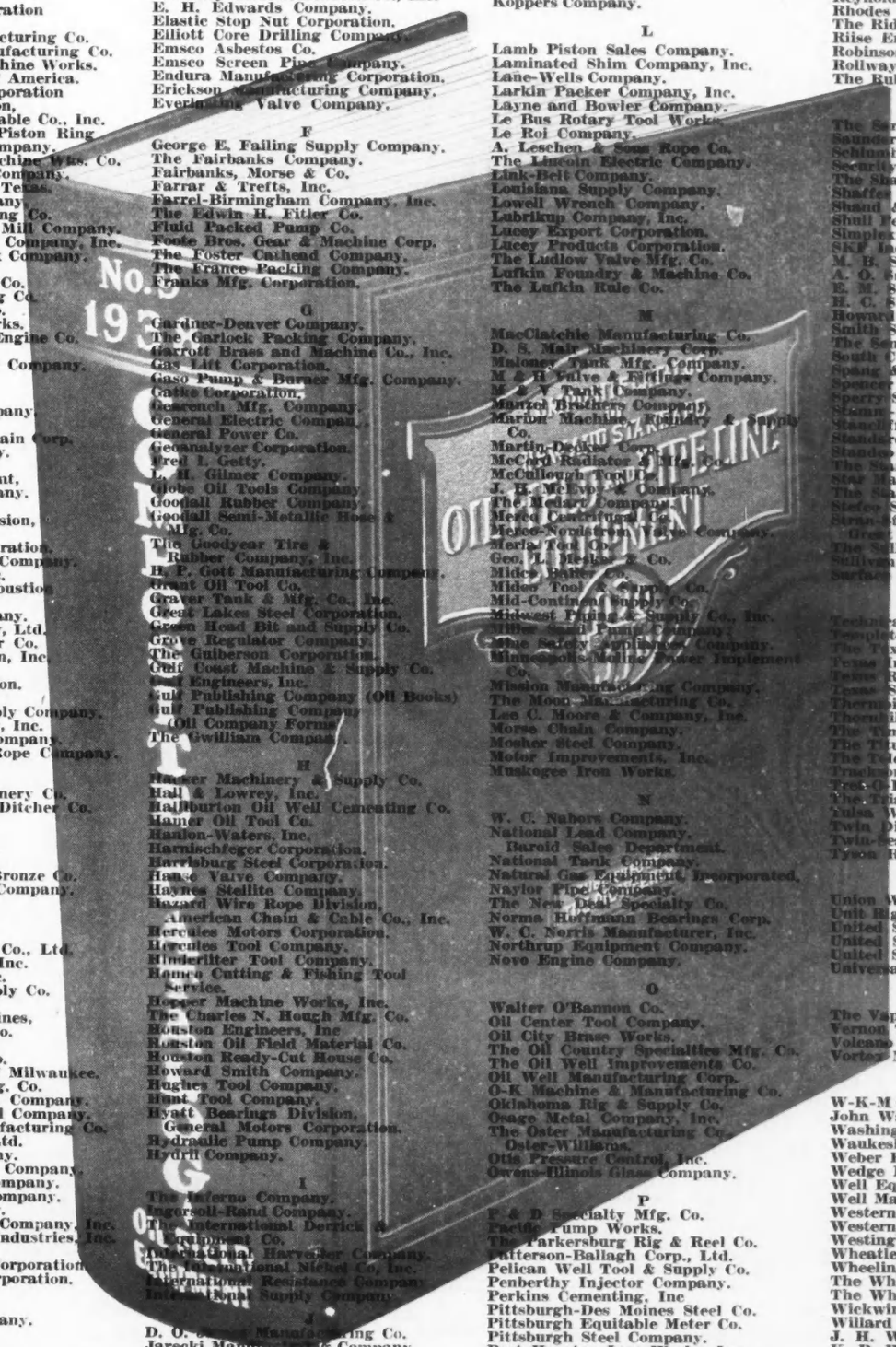

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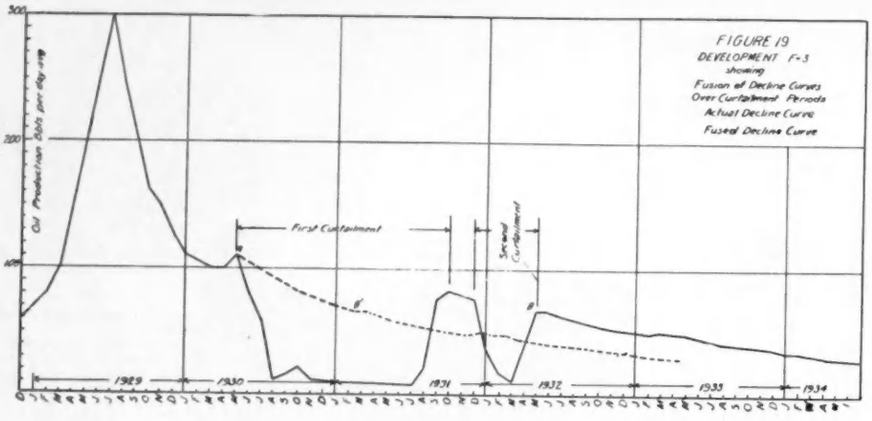


saturation being determined by the old burning method. The only fairly reliable evidence available, the fused decline curve, seems to indicate that practically no oil was lost on this development because of curtailment.

Development F-3

The production curve of this property, which is shown in Figure 19, was curtailed in the same manner as F-2 by reducing the pressures on the inputs. There were two curtailment periods, and the fused decline curve appears normal and indicates that production was deferred by about 14½ months. Since some of the property was flooded under low pressure gradients during the curtailment period, some oil may have been lost. However, the part of the area which was flooded in this manner represents only a small fraction of the total area (compare area under curve during curtailment with total area) and therefore only a very small amount of oil would have been lost. Since no core data are available, no prediction on the recoveries can be made, but it is believed from a study of the fused decline curve that practically no oil was lost.

Development F-5

Some claims for oil lost due to a curtailment or shutdown are based upon the change in production before and after a clean-out job. The history of the production before, during and after such treatment of a producing well is given in Figure 20. In the majority of these cases, the contention of a loss is based upon a consideration of the production just before and after the shutdown. This consideration, it is true, will show an apparent loss, but it should be kept in mind that if the general trend is maintained and if the production is only deferred by a period of time of the order of the shutdown, the claim of a loss would not be valid.

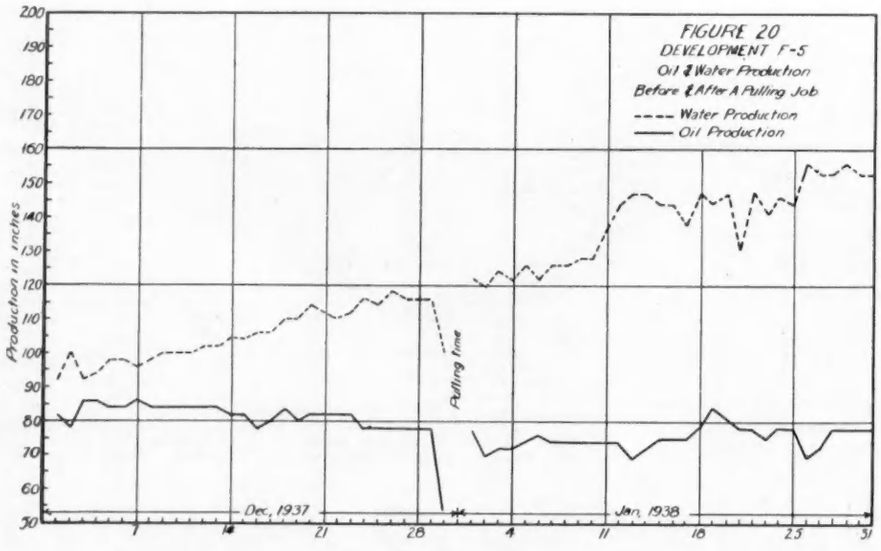
During a shutdown period, a head of both oil and water will build up in the well with the water on the bottom. In an early part of the paper it was indicated how it would be possible for the water to enter some of the formations and reduce the rate of production. This is indicated on the curve of F-5. It will also be noticed that although the water production seems to have increased because of the shutdown, in reality the general trend has remained the same. The general trend for the oil production is also maintained, even though the production immediately after the shutdown has dropped. This would mean that the water-oil ratio would behave normally (gradually increase), which was also observed in the case of curtailment programs.

The increase in water production around the middle of January is accompanied by corresponding increase in oil production and is probably due to an increase in the driving pressure. It would seem, then, that the claim for a loss in production during curtailment, based upon a shutdown such as was just considered, is not valid.

Development G-1

This property was curtailed by a reduction of the pressure on the input wells, allowing a back pressure to build up in the producing wells, and pumping off the water and the allowable. The back pressure was so high that the oil stood almost to the top of the producing wells. The curtailment period was from July, 1930, to July, 1933 (see Figure 21), but despite the very low pressure gradients involved a very abrupt peak was reached in the latter part of 1931. This would indicate a high permeability streak. Since the curtailment period was during the early life of the flood, a fused production curve would have little meaning.

Upon first inspection there might seem to be reasons for a loss of oil. The property was flooded for a long period of time under low pressure gradients, but this took place during the early life of the property during which flooding is most favorable and can therefore withstand a reduction in pressures without undue harm. There was a possibility of a thief sand in the producers, and the water, which came from a well, was untreated. Both these factors might decrease the yields of oil, but the exposed sand



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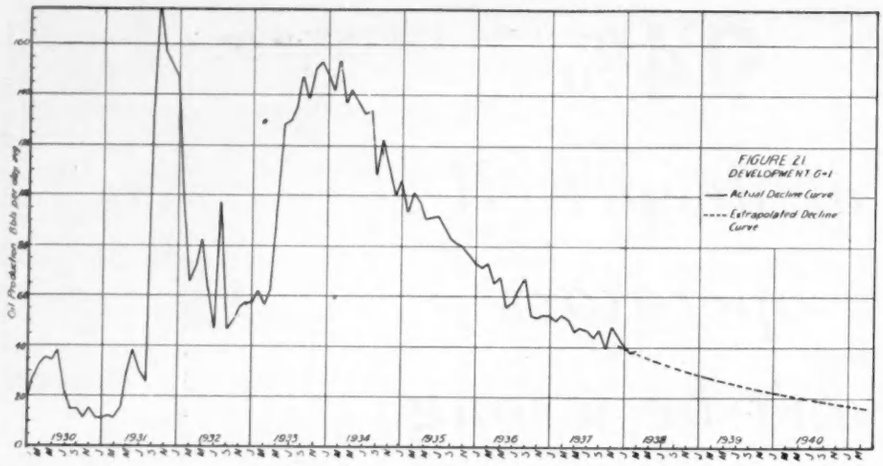


may have been very tight and the water may have been in good condition. In spite of all these possibilities of a loss, the property has produced 8100 barrels per acre and is still producing about 1½ barrels of oil per acre per day. The recovery predicted from a core analysis is a bit better than 9000 barrels per acre and the extrapolated production curve gives approximately the same figure. It may be concluded, therefore, that practically no oil was lost during the long curtailment period.

Summary

Although the developments just considered were subject to various types of curtailment and the sand conditions represented cover a wide range, the data in several cases were not sufficiently complete. Nevertheless, the following general conclusions may be drawn from the analysis:

1. No appreciable quantities of oil were lost by reason of the curtailment. One exception to this statement can be made with respect to a property which contained a thief sand. This is a factor which can be remedied.

2. The production will be deferred because of a curtailment period and the time will depend upon the total production during curtailment and the normal operating production of the property.

3. The safest time to curtail is during the early life of the flood.

4. The application of a back pressure conserves the energy in the formation and makes the property respond more quickly upon the reapplication of normal operating conditions.

5. Oil-water ratios do not depart from normal because of shutdowns or curtailments.

In curtailing production, two general methods may be applied: either reduce the production on all the properties or shut down some completely and operate the others applying the most intensive methods. If all the properties are curtailed, all will be subject to lower pressure gradients (except those which are in the early part of the life of a flood), which allows for a possible loss of oil. Therefore, from the standpoint of applying lower effective driving pressures for curtailment, only those floods which are in their early life and those properties having a high average permeability are comparatively safe.

If the flood is in a stationary condition, no losses can occur and upon resumption of operations production will return to normal. It should be kept in mind, however, that a complete shutdown on one property with intensive operations on a neighboring one may result in some migration of production if the sand contains any loose streaks. If this last objection does not exist, it seems that the best plan would be to close in part of the production and operate the rest under normal conditions. The question then arises as to the best method of shutting in. Obviously, a conservation of the reservoir energy is desirable so there should be some back pressure on the producing wells. The possibility of exposed thief sands in the producer must be taken into account and a means of removing the water from the sand must be provided. The pressures on the formation should preferably be just sufficient to keep the gas in solution but not too high to cause oil to migrate away from the property.

If the property is to be curtailed, the effective driving pressures must be reduced and this can be done in several ways. It is possible to reduce pumping costs by flowing the wells, providing there is no thief sand in the producers. The presence of a loose streak in the sand would eliminate this possibility as the pressure on the formation would cause some oil to migrate.

It has been pointed out in an earlier part of this paper that a back pressure up to a certain point in a producer may be beneficial in reducing Jamin action and therefore increasing the efficiency of production. It has also been indicated that excessive back pressures may cause a migration of oil through loose streaks. If lower pressure gradients are to be applied to the development in order to curtail production, it would, therefore, be best to keep the gas in solution and control the input pressure to keep within the allowable. This would then keep the pump pressures at a minimum. Theoretically, the lower pressure gradients will result in a loss of some oil (see discussion on this phase of curtailment), the loss being dependent upon the permeability of the sand. It should be kept in mind that this loss will be over only that portion of the sand which is flooded during such a period. However, the money lost by reason of the lost oil will be far less than the loss which would be entailed in a completely destroyed price structure which would be the result if production were not curtailed.

Acknowledgments

The author wishes to acknowledge the help of L. T. Bissey, J. C. Calhoun, and J. S. Levine in the collection of some of this data and in preparing the manuscript for publication. The help of J. C. Martin, executive secretary of the Bradford District Pennsylvania Oil Producers Association and the numerous producers in the Bradford area who contributed their time and data is gratefully acknowledged. The author also wishes to thank Dr. A. W. Gauger, director of the Mineral Industries Experiment Station of The Pennsylvania State College for his advice during the preparation of this paper. This work was supported in part by the Bradford District Research Group.

[*Conclusion*]

WORLD DEVELOPMENT and TECHNOLOGY

Edited by
WM. V. GROSS, Associate Editor

Mexican Situation

Companies to be paid for investment only . . . Hull's note unjustified, says Cardenas . . . Agrarian confiscation program to continue . . . Arbitration rejected.

BRITISH and American oil companies whose properties valued generally at $400,000,000 were expropriated March 18 by President Cardenas of Mexico will be paid for those properties only in terms of the actual amount of money those companies had invested in Mexico at the time of expropriation.

That was the announcement of Cardenas to the Mexican people September 1. He rejected, moreover, the suggestion of Secretary of State Cordell Hull that Mexico cease expropriation of property in Mexico belonging to citizens of the United States until Mexico is in a position to pay cash at the time of expropriation. Furthermore, Cardenas announced bluntly that his government would continue the agrarian program which has been one of general confiscation thus far.

Says Note Unjustified

Cardenas termed "unjustified" the tenor of Hull's note of August 25, which was a demand that definite steps be taken for immediate payment for farm and ranch properties confiscated from Americans by Mexico over a period of years. He refused also Hull's demand for submission of the problem to arbitration.

Airtight control of oil in her territory is Mexico's objective, it was revealed by Cardenas in announcing during his annual message to the new congress that a bill has been presented providing for complete state control of oil and prohibiting the granting of any concessions to exploit subsoil oil.

Washington is withholding comment on the note from Mexico pending translation and perusal of the official text. Meanwhile, it is observed that affairs have reached a state where one of the two nations must back down or accept some sort of compromise.

Cardenas' announcement to the Mexican congress September 1 that "under the necessities of the people the government cannot make immediate payment" is expected to have some influence on that nation's credit. It is a matter of record that some of her attempts to float bond issues since March 18 have flopped, due primarily to lack of confidence in the business acumen of the government on the part of those in a position to purchase bonds. It is also a matter of record that Mexico needs several million dollars for reconditioning and modernizing oil industry equipment alone, to say nothing of the millions needed for putting into operating condition the rolling stock of her railroads, which also once were privately owned—by foreigners largely.

Pay to Be Small

A telegram received by THE OIL WEEKLY from Mexico City September 2, stated:

"Cardenas said that evaluation of the oil companies' properties is continuing to ascertain speedily the amount of indemnification. He indicated this compensation will be comparatively small because, he asserted, the companies have relatively little property as the constitution provides that all subsoil oil belongs to the nation and because the companies' concessions were cancelled before expropriation. Indemnification, he reiterated, will be from proceeds of the sale of oil from expropriated wells and those in government reserves. He announced that public contributions to the oil debt fund totaled 2,000,000 pesos and $25,000, funds which are on deposit in the Bank of Mexico for application to indemnifying the companies."

Jose D. Baez, chief of the petroleum department, recently headed a group of federal experts in valuation of expropriated oil properties in the Tampico sector, one of several steps allegedly being taken to assist Mexico in fixing compensation amounts to be paid the oil companies.

Would Defranchise Supporters

The latter part of August the state legislature of Chiapas voted approval of Oaxaca's legislature's suggestion that all persons defending the oil companies' interest should lose Mexican nationality. But reports from Monterrey, capitol of Nuevo Leon, indicate General Andreu Almazan, foremost tactician of the Mexican army, has been sent to Mexico City to attempt to persuade Cardenas to modify his expropriation program.

Sales Limited

Mexico continues her efforts to build up the petroleum export trade to the level maintained prior to confiscation of the oil properties, but has thus far failed to come anywhere near that level. She has sold some oil abroad, but it is freely predicted that her crude and refined products exports for 1938 will not be half of what they were in 1937. Most of her business continues to be with Italy and Germany, though she is currently disposing of some oil to Eastern States Petroleum Company in Houston, the firm having already received about 100,000 barrels of crude. Reports are current that Houston will receive 200,000 barrels more from Mexico in September.

Compania Mexicana Bines Mueblas, S. A., a realty company, has filed suit in a Mexico City district court demanding that Petroleos Mexicanos, the official government oil company, be ousted from the building from which it evicted the Mexican Eagle Oil Company (El Aguila) shortly after expropriation. Bines asserts that the building now being used as headquarters for Petroleos Mexicanos is his company's property and that the government had no right to occupy it as the Mexican Eagle was merely a lessee and that the plaintiff firm is not involved in the oil conflict.

Preparing to test deeper sand in Scotland's wildcat

August closed with news from England that Anglo-American Oil Company was preparing to test a sand found at 2050-2150 feet in Midlothian 1, near Dalkeith, Scotland, after sand at 1730-60 feet failed to yield more than 10 barrels per day after being shot.

Midlothian 1, located within about 100 yards of the spot where D'Arcy Exploration Company obtained noncommercial production in 1922, represents the first encouraging strike in Britain's current wildcatting campaign. The structure on which the well is located is known as the Cousland-D'Arcy anticline, the well being east of the supposed axis of that anticline. Anglo-American's block consists of 12 square

miles and adjoins a much larger block licensed to D'Arcy Exploration Company. Through this latter block runs the structure's axis. Edinburgh, less than 10 miles northwest of the strike, would provide sufficient market outlet for any crude production likely to be developed in 1938 and 1939.

Franco may supply gas to Saskatoon, Saskatchewan

As a preliminary step which may lead to furnishing natural gas to Saskatoon, Saskatchewan, Canada, the city council has named a committee to study proposals to be submitted by Franco Oils Ltd. for supplying natural gas to the city. Walter F. Thorn of Moose Jaw, representing the company, said there was assurance of an adequate supply and adequate funds for financing the project.

Largest producing firm in Hungary will reorganize

European Gas & Electric Company, affiliate of Standard Oil Company of New Jersey that discovered the first worthwhile oil production in Hungary, will be formed into a new, limited liability, Hungarian company of 14,360,000 pengo capital, about $2,875,000 U. S., most of which represents existing properties and equipment of the present firm. The remainder, or 4,300,000 pengo, will, according to information obtained in Budapest, be subscribed in cash and spent for further development.

An understanding between the government and European Gas & Electric Company provides that the company shall indicate within six months whether it will continue drilling in the Szentajordan field, Hungary's newer field. If drilling in the new field proves unprofitable, it is understood the company must shift exploratory efforts to other likely areas in Hungary. The government royalty on oil produced will be 15 percent of the proceeds of the company, though advices from Budapest did not say whether this meant 15 percent of the market value of all oil produced or 15 percent of the net profits.

In the light of the above news, something of Hungary's two fields will be of interest. For the following information credit goes to Dale W. Maher of Budapest.

Szentadorjan Lispe field, the concession for which is held by the European Gas & Electric Company, produces over 80 percent of Hungary's total production. The remaining 20 percent comes from the government owned and operated fields at Bukkszek. These two fields are producing between 12 and 13 carloads (of 10 metric tons each) a day, which is about 20 percent of Hungary's requirements. There appears to be little hope of greatly increasing the production of the Bukkszek field, but production in the Szentadorjan field is expected to increase in the near future, and there is considerable justification for the hope that this field will eventually supply all of Hungary's needs.

Bukkszek field was the first oil discovery in Hungary. The oil is found in small pockets at shallow depth. Production from the whole field averages less than one carload (10 metric tons) a lay. In the year ended April 30, 1938, the total production was 200 carloads valued at 160,000 pengo. Production is now reported, however, at between two and three carloads a day. The income from this field is being used for further prospecting and development of oil production.

Oil from Bukkszek is classified as follows:

	Percent
Light Benzine	2.75
Heavy Benzine	3.22
Petroleum	18.40
Gas Oil	37.10
Heavy Oils	38.00
Loss	.53

In the Szentadorjan Lispe field of Trans-Danubia well No. 2 has produced 5 carloads a day since November 25, 1937. Another well, No. 3, has only recently begun to produce and is yielding 5 carloads a day also. For the past four months, the monthly production of this field has averaged 150 carloads valued at 120,000 pengo. With No. 3 in production, the average will probably be higher. Two more wells, No. 4 and No. 5, are being bored and are expected to produce by August. It is planned to drill many more wells in this district and attempts to find oil at deep levels are to be made. The oil produced in the Trans-Danubian field is classified as follows:

	Percent
Light Benzine	21.9
Heavy Benzine	4.1
Petroleum	28.00
Gas Oil	14.5
Heavy Oils	29.9
Loss	.9

It is reported that the producing company has already spent between seven and eight million pengo on the Szentadorjan Lispe field.

Natural Gas

Since the discovery of natural gas in the Hungarian central plain in 1927, in which year 90,000 cubic meters were produced, the annual production has risen rapidly, reaching 3,396,000 cubic meters in 1937 and a jump was recorded in the first two months of 1938, when 848,638 cubic meters were produced as compared with 432,000 meters in the first two months of 1937.

During the past 10 years the Treasury sold 14,500,000 cubic meters of natural gas to the electric plant at Hajduszoboszlo and to the city of Debrecen.

Turner Valley allowable gets another increase

A third increase in the allowable production of crude wells in the Turner Valley field of Alberta, Canada, last week brought production to 56 percent of potential. It brings daily production for the field to about 29,000 barrels a day.

Until three weeks ago, Turner Valley wells were producing at 37 percent of potential, which was increased to 48 percent because of increased demand for refined products in the prairie provinces. Succeeding increases in allowable brought production to 51 percent a week ago, and last week to 56 percent.

Wildcat planned east of Coutts, Alberta, Canada

T. Boyd Kyle announced plans for immediate drilling of a wildcat on Legal Subdivision 13, Section 4, Township 2, 13-w4, east of Coutts and west of the Sweetgrass uplift. It will be drilled by Drilling Contractors, Limited, and heavy duty standard tools will be used. A 24-inch hole will be started.

Reports from other wildcat structures follow: Battleview — Battleview Oils Ltd.'s 1, testing at 1893 feet; Pacalta Oils Ltd.'s 1, waiting at 2337 feet, and Altoba Oils Ltd.'s 2, testing at 2311 feet. Bearberry—Petroleum Structures Ltd.'s 1, drilling at 1042 feet. Birch Ridge—Elbow Oil Company Ltd.'s 1, idle at 5520 feet. Brazeau—Home Oils (Brazeau) Ltd.'s 1, casing at 4520 feet. Bridge Dome — Anglo-Canadian Oil Company, Ltd.'s 1, rigging. Calling Valley—Sentinel Oils Ltd.'s 1, resuming from 6800 feet. Cardston—Franco Oils Ltd.'s 1, waiting at 4580 feet. Clearwater—Canyon Oils Ltd.'s 1, hauling material to location. Del Bonita—Adams Oils Ltd.'s 1, drilling at 175 feet. De Winton—Marquis Oil Company's 1, resuming from 4500 feet. Duncan—Spindletop Oils Ltd.'s 1, waiting at 2315 feet. High River-Aldersyde — Ranchmen's Oil Company Ltd.'s 1, fishing at 7230 feet. Highwood-Sinclair — Green Valley Petroleums Ltd.'s Banner 1, mechanical trouble at 6202 feet, in the Madison limestone. Hunter Valley—Hunter Valley Oil Company Ltd.'s 1, standing at 8274 feet. Kootenay Dome—Roxana Petroleum Ltd.'s 1, drilling at 3942 feet. Lethbridge—Lethbridge Southern's 1, testing at 4055 feet, and Lethbridge Petroleum & Refineries Ltd's 1, cementing casing at 2915 feet. Magrath—Lyons-M'Intyre 1, standing at 3630 feet. Moose Dome—Model-Canyon Oils Ltd.'s 1, standing with no depth reported. New Valley—New Valley Oil Company, Ltd.'s 1, casing at 8430 feet. Pincher Creek—Weymarn Petroleums Ltd.'s 2, waiting at 6432 feet. Pouce Coupe—Batcheller Syndicate's 1, waiting at 1224 feet, and Guardian Oil Company Ltd.'s 1, drilling at 1067 feet. Ribstone—Blackfoot Ribstone Oils Ltd.'s 1, drilling at 1800 feet, and London Ribstone Petroleums Ltd.'s 2, testing with no depth reported. Rogers—Range Gas & Oil Company Ltd.'s 1, drilling at 2638 feet. Steveville—Anaconda Oil Company, Ltd.'s 1, drilling at 2100 feet. Taber—Amerada Petroleums Ltd.'s 1, derrick up; Border Petroleums Ltd.'s 1, drilling at 2525 feet; North Taber Royalties Ltd.'s 1, drilling at 825 feet; Plains Petroleum Corporation Ltd.'s 4, drilling at 2650 feet, and Plains Petroleum Corporation Ltd.'s 5, waiting at 747 feet. Vermilion—Wain-Town Oil & Gas Company Ltd.'s 1, casing at 1004 feet. Wainwright — Montreal-Alberta Petroleums Ltd.'s 1, drilling at 3505 feet. Willow Creek—Willow Creek Oils, drilling at 300 feet. Watson—Mar-Jon Oil Company Ltd.'s 3, installing rotary at 5220 feet. Mar-Jon Oil Company Ltd.'s 5, cellar dug, and Mar-Jon Oil Company's Maxmount 4, drilling with no depth reported.

On the Boundary Bay structure of British Columbia, Boundary Bay Oil & Gas Company's 1 was waiting at 4000 feet.

MEN IN THE INDUSTRY'S NEWS

BERT F. WEEKLEY, George Calvert and J. M. (Jack) Loffland, Fort Worth oil men, and John R. Suman, vice president of Humble Oil & Refining Company, Houston, are en route to British Columbia on a big game hunt. The party plans to remain in the Canadian Province until it bags the limit permitted on moose, elk and bear.

CHAS. F. ROESER, president of Roeser & Pendleton, Inc., and head of the Independent Petroleum Association of America, was confined to a Fort Worth hospital the fore part of last week with an attack of indigestion.

K. A. (GUS) SCHMIDT, Tri-state district geologist for Tide Water Associated Oil Company with headquarters at Shreveport, departed the past week, accompanied by his wife and son, on a vacation to be spent at his former home near Springfield, Missouri.

L. E. MERRITT, East Texas producer and drilling contractor, with headquarters at Longview, is confined in a hospital at Marshall, Texas, with a bullet wound in the back received August 28 while operating a speed boat on Caddo Lake. A companion also received a flesh wound, apparently from the same pellet.

JOSEPH BOYLE of London, manager of Anglo-Saxon Petroleum Company, recently arrived in New York and will return to England late in September.

JOSEPH W. McINTOSH, former comptroller of the currency, Warrenton, Virginia, last week was named to the directorate of Pure Oil Company, succeeding Warren C. Fairbanks, Indianapolis, Indiana.

ROBERT REED, New York oil financier, stopped in Calgary last week while on a tour of Alberta oil fields.

HERBERT HOOVER, JR., accompanied by Prof. P. S. Fogg, of the California Institute of Technology, visited the Brazeau structure of Alberta, Canada, where the Home-Brazeau Oil Company, Limited, is drilling a wildcat test.

FRANK MITCHELL, of Effingham, Illinois; W. H. Van Tifflin, Detroit, Michigan, and I. L. Wooster, Olney, Illinois, last week organized Richland Corporation. The company is taking over leases in the North Olney field, Richland County, Illinois, upon which producing wells have been drilled by Fortney Oil Company and Sylvester et al.

MICHEL BERTIN of Paris, vice president of Vacuum Oil Company, S.A., Francaise, recently arrived in New York from Havre on the Normandie.

B. N. NOAKE, formerly with the Nueces County tax assessors office and before that with the Southwest Drilling Company of San Antonio, now is associated with Harry Mosser of Alice, Texas. He will do scouting and land work.

PHIL F. MARTYN, chief geologist for Houston Oil Company, at Houston, was called to Missouri because of the death of his mother, Mrs. J. H. Martyn, at Rolla, Missouri, August 26.

W. K. WARREN, president of Warren Petroleum Corporation, was vacationing last week in Junaluska, North Carolina.

J. C. JONES, geologist with Yount-Lee Oil Company in Texas for 19 years and now making his headquarters in Centralia, discussed the Illinois oil development before a gathering at Boyd, Illinois, last week.

PAUL BURTON, clerk in the accounting department of Plymouth Oil Company, Sinton, Texas, is improving after a serious illness. He is in a hospital at Corpus Christi.

HENRY CARTER REA has returned from Afghanistan and now is district geologist for Shell Petroleum Corporation at Owensboro, Kentucky.

MIKE ADAMS, scout for Standard Oil Company of Texas, Houston, became a proud father, August 26, when Mike S. Adams was born. The new arrival weighed eight pounds.

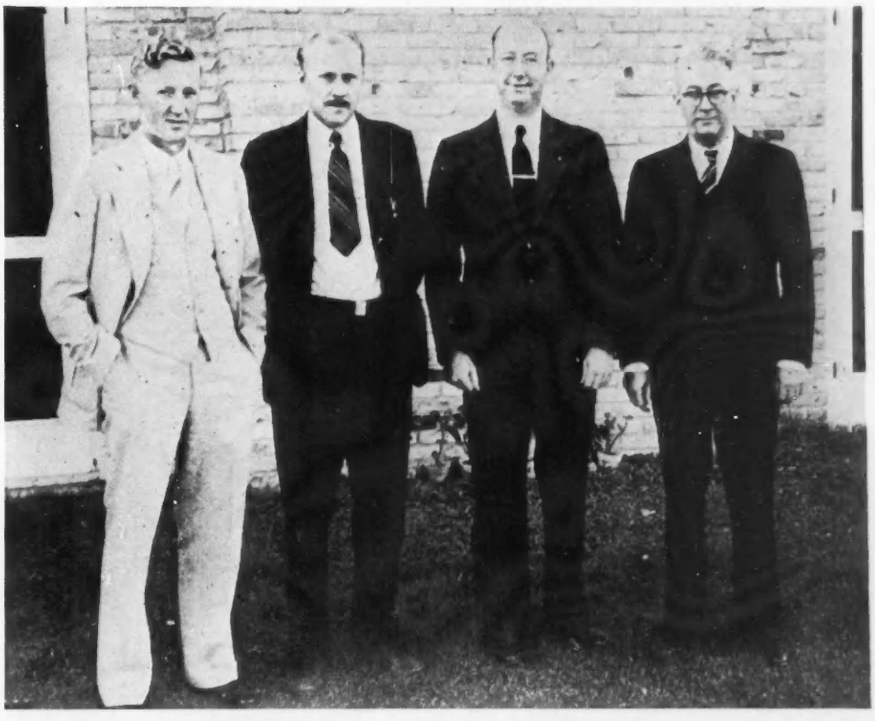
DR. O. G. SANDERSON, Calgary geologist, captured a pool arranged by Alberta oil men with an estimate of 9735 feet as the depth at which Okalta Oils Ltd.'s 6 would encounter the Madison limestone. The well, one of the most closely watched in the Canadian province at the present time, is the deepest yet to be drilled in the British Empire.

W. W. SIMPSON has been transferred from Great Bend, Kansas, to Mattoon, Illinois, by the Skelly Oil Company, where he is serving as field scout.

DR. C. HERSCHOOFER, Bucharest, head of Society Fanto, European oil company, termed crude from Turner Valley, Canada's principal oil field, far superior to that produced in Europe. On his arrival in Victoria, B. C., last week, Dr. Herschoorfer declared: "Your only problem is transportation. I believe that problem can be solved within the next year, and Canada can then be independent in crude oil, which is the most important of all minerals today."

DR. W. T. THOM, professor of geology at Princeton University, and Dr. M. H. Stow, head of the geological department of Washington & Lee University, are conducting a party of university students

Geologists Meet In Michigan



Left to right: William Brown, consulting geologist; E. A. Newman, state petroleum geologist and acting president Michigan Geological Society; Dr. R. B. Newcombe, consulting geologist, and first president Michigan Geological Society; and Dr. Donald C. Barton, Houston, Texas, president American Association of Petroleum Geologists.

Dr. Barton was the guest speaker of the Michigan Geological Society in Mt. Pleasant, Michigan, August 26, the first meeting of the 1938-39 year. The society did not meet during the summer weeks.

on a tour of Kansas, Oklahoma, Texas, Louisiana, Wyoming and Alabama oil fields for a first-hand study of exploratory methods, drilling problems and production practices.

Students in the party are R. G. Galey, H. Wynne, A. P. Osborn, B. W. Wright, J. S. Shirk, F. E. Lozo, Sam Vaulclain, McCombs Hardy, M. H. Russ and J. A. Quigley.

A. J. SLAGTER, Tulsa, speaking before the Henderson Rotary Club last week, predicted the new Birk City field of Henderson and Daviess Counties, Kentucky, would yield oil in good quantity for several years.

ELMO McCUNE, superintendent of the land department for Sun Oil Company in the Dallas division, has retreated with his family to a cottage near Colorado Springs, Colorado, until mid-September.

J. L. LATIMER, vice president of Magnolia Pipe Line Company, Dallas, accompanied by his wife and their two daughters, visited Carlsbad Cavern and other popular vacation spots in New Mexico the past week.

S. P. TSCHAPPAT, general manager of Hercules Tool Company of Tulsa, Oklahoma, has been visiting his mother in Bellaire, Ohio. Before returning, Tschappat will engage in sales activities throughout the oil fields of Illinois, Indiana and Kentucky, where he also plans to study drilling and production practices.

JIMMIE LOCK, geological scout with Pure Oil Company in West Texas, was in Corpus Christi during the week.

W. M. GRIFFITH, vice president and general manager of Plymouth Oil Company, is in Pittsburgh, Penn., to attend a directors meeting.

S. P. BELL, land man for Arkansas Fuel Oil Company, whose office in San Antonio, is recovering after an illness of several weeks.

J. ROBY PENN, president of Texas Pacific Coal & Oil Company, Fort Worth, is vacationing at Valley Ranch, a mountain resort in northern New Mexico.

FRED T. HILDT, Tulsa independent operator, has returned to his office following a lengthy survey in the Owensboro area of northwestern Kentucky.

C. C. CARTWRIGHT, vice president in charge of the Texas division sales branch of National Supply Company at Fort Worth, is vacationing in Colorado, accompanied by his family.

J. E. BILLETTE, Montreal, of Sun Ray Development Company, was in Calgary last week supervising preliminary operations at the company's first test being drilled in Turner Valley, Alberta.

T. G. MADGWICK of the Bureau of Mines, Canadian Department of Mines and Resources, Ottawa, was in Calgary last week gaining a first-hand picture of Alberta's growing oil industry.

From Iran to New Zealand

When Amiranian Oil Company recently ceased preliminary exploratory work on a concession of 190,000 square miles in Iran, the above gentlemen were transferred to New Zealand, where they will soon have underway for New Zealand Petroleum Company, Limited, a wildcat near Gisborne. Left to right they are: G. J. Baker, driller; Robert L. Kuss, driller; C. P. MacDonald, rig building engineer of Parkersburg Rig and Reel Company; S. H. Dykes, driller; and Hobart L. LaMar, drilling superintendent.

FRANK MARLOW, Braxton, has been named the president of Braxton County Division of the West Virginia Petroleum Asociation. Other officers elected were: C. F. Crisman, Gassaway, vice president; E. W. Marple, Heaters, secretary; H. Kent Duffield, Sutton, legislative committee chairman; E. C. Williams, legislative committee vice chairman, Harley Gerwig, Gassoway, public relations committee chairman; H. B. McLaughlin, Gassoway, public relations committee vice chairman, and L. N. Englehart, Sutton, local affairs committee chairman.

DIED:

JOHN C. LOOKER, formerly one of Pennsylvania's largest producers, and chosen "grand old man of the oil industry" at the Sixth International Petroleum Exposition in 1929, died August 31 at his home in Bradford, Pennsylvania. He was 84 years old. Looker started in the oil business at Bradford in 1880, and later operated leases near Tulsa. In 1928 he sold his Pennsylvania holdings for a reported figure of $1,500,000 to Petroleum Reclamation Company.

FRED G. LEIDECKER, 64, Dallas producer, died August 29 in Santa Monica, California, while on an extended visit. He was a native of Pennsylvania, and operated in the Eastern States before moving to Texas. He later became superintendent of production in Texas for Atlantic Refining Company, and resigned about 5 years ago to develop West Texas properties jointly with his son, Jack H. Leidecker. Funeral services were held in Dallas September 2.

JOHN L. WHITE, 40; Leonard Madden, 32, and N. P. Rhuyle, 35, members of a well cleanout crew employed by the Magnolia Petroleum Company in conditioning an old well on its John Radford lease, Kilgore section of the East Texas field, were fatally burned August 28. The well made an unexpected flow, and the production was ignited by a tractor, causing a burst of flame that reached the oil-soaked clothes worn by the workmen.

WILSON McCALMONT SMITH, well known oil operator of Plumer, Pennsylvania, died August 28 at his home following a three months' illness. He was 74.

JOSEPH W. MINTEER, 69, oil well driller who made his home in Tulsa, died August 29 following a two months' illness

THADDEUS F. GREENE, 63, auditor for Herbert Oil Company, was fatally stricken August 25 at his Fort Worth residence while on a vacation. He had been an employee of the company for 13 years, and formerly resided in Ohio.

CARL L. PFEIFER, 57, treasurer of Chain Belt Company, Milwaukee, for the past 12 years, died August 24 in a Philadelphia hospital while on a business trip in the east. He is survived by his wife, a daughter and two sons, Herbert, a member of the advertising department of Chain Belt Company, and Lowell, an instructor in the Marquette University college of engineering.

THE WEEK'S NEWS SUMMARIZED

Markets

The long heralded East Texas price cut became a reality last week, when major companies cut 10 cents a barrel to $1.25. At the same time, however, high gravity crudes in Texas were raised 2 to 20 cents a barrel in some instances.

The East Texas reduction precipitated cuts of ⅛ to ¼ cent a gallon in gasoline tank car prices in the Mid-Continent, and Pennsylvania grade crudes gave way to a 12-cent slash.

Despite these price revisions, however, the industry's market situation as a whole continued relatively good, and maintained a favorable outlook. The program for allowables in September is much stricter than in August, in view of Texas deciding to have two production holidays a week instead of one. Meanwhile, the industry is steadily reducing gasoline stocks, while crude storage continues to drop, reaching a 15-year low. Important last week was a slight reduction of fuel oil stocks, which have been increasing steadily.

The East Texas cut was brought about by the big field losing some of its markets to low-priced pools, and the reduction will place it in a more favorable relationship.

Allowables

Stricter crude production allowables are in prospect for September than existed in August, as a result of the six leading states having adopted schedules 9 percent below the Bureau of Mines estimate of demand. In August the states' allowables were but 4 percent below the bureau's forecast of demand.

This presents an excellent opportunity for the industry to materially reduce its above ground storage. If refiners will curtail runs to stills in proportion, both gasoline and fuel oil storage may be drawn upon, and both are too excessive at present. Such action would improve strongly the industry's position as it enters the winter months.

Saturday closing of Texas oil wells will be added to Sunday shutdowns in September. The increase of production holidays from one to two days a week is expected to reduce the state's output 165,000 barrels daily below August. It is estimated that Texas' daily average allowable, considering 8 holidays during September, will be 1,233,248. Of course, new completions will raise this somewhat.

This action was taken by the Texas Railroad Commission in the wake of a 10-cent a barrel price reduction in East Texas, and for the purpose of bringing production nearer to the level believed desirable at this season of the year, which sees the start of declining gasoline demand. It was pointed out that while crude stocks are below those of a year ago, both fuel oil and gasoline volumes in storage are considerably higher.

Texas Politics

Speculation over the possible future course of Texas oil proration ran rampant last week as two new political comers were elected to the most important positions, as far as the petroleum industry was concerned, in the state. G. A. Sadler defeated the veteran C. V. Terrell for railroad commissioner, and Gerald Mann became attorney general. So far both are only Democratic nominees, but are considered certain of final election in this strong Democratic state.

Terrell and Colonel E. O. Thompson have run the Texas Railroad Commission for a number of years. The question was whether Sadler would team with the conservative Thompson or the other member, Lon Smith. The Terrell-Thompson administration has kept production at low levels, which has been generally satisfactory to the oil industry. Sadler will hold the balance of power in his hands.

However, he may not have too easy a time of it. There is a possibility Smith suddenly may lean toward the Thompson side, as he is up for reelection two years hence. Moreover, agitation for a separate oil and gas commission is certain to arise again should the new commissioner aggravate the oil industry.

Another question causing considerable concern was the possibility of dumping hot oil in East Texas upon an already sagging market. This was caused largely by the oil industry's uncertainty as regards incoming state officials.

Rumors that a special Texas legislative session would be called for the purpose of creating a new oil and gas commission and to prevent the handling of hot oil faded last week.

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Market Situation

East Texas crude cut 10 cents; Pennsylvania 12 cents . . . Higher postings given some of high gravity Texas fields . . . Gasoline prices sag

Markets generally stable following price changes

Following the various revisions of both crude and refined oil prices, the industry's markets late last week had recovered a degree of stability, and it was promised that prices subsequently would be generally steady.

Price cutting had been heralded previously by the reduction of the East Texas crude posting by several independent refiners, but it did not become general until early last week, when major companies cut East Texas crude 10 cents. At the same time, however, high gravity crudes were raised 2 to 20 cents a barrel in some instances in Texas.

The gasoline market had been weak previously, and the East Texas crude cut apparently precipitated the reductions of ⅛ to ¼-cent a gallon in gasoline tank car prices in the Mid-Continent.

Similarly, the market for Pennsylvania grade crude had been unsteady for some time, and it gave way to a 12-cent crude cut a few days after the lowering of the East Texas crude posting and of Mid-Continent gasoline prices. For at least to some extent, Pennsylvania grade oils, crude and refined, are in competition with those of the Mid-Continent.

General Situation Good

Despite all these revisions of prices, however, the industry's market situation as a whole has continued relatively good, and the outlook is favorable.

The East Texas and Eastern States crude cuts were essentially of only local significance, having been necessary because of conditions peculiar to those areas. The East Texas price had to come down some because the big field was losing markets to neighboring fields in North Louisiana and Arkansas, where prices were more attractive to purchasers. The Pennsylvania grade postings no longer could be maintained in the face of the combination of lagging demand for lubricants and continued relatively heavy production of crude oil in the Eastern States. The difficulties in that region have grown out of the reduced industrial consumption of lubricants during the recession.

In the rest of the country, however, crude oil production has been for some time in close balance with demand, and continues so; and the established crude postings appear to be in no immediate danger. An exception is offered in California, where the voluntary type proration has not been adequate for effectively controlling crude production, and where there is some concern over the safety of the present price structures.

While the various price reductions will tend to steady the markets at the new price levels, another stabilizing influence will be the exceptionally strict curtailment of crude oil production during September, under the allowables promulgated by the leading producing states.

The program of allowables for September is much stricter than that of August, and is due to bring about further sharp reductions of above-ground oil inventories.

If the refining division pursues a similarly conservative course, it will be able to make large inroads into surplus gasoline stocks during the month and bring the supplies down close to economic levels. And such a course will be encouraged, as it will be necessary unless unusually large quantities of crude are taken out of storage.

Operations Continue Moderate

Meanwhile, the current operations of the industry also are generally satisfactory and conducive to firm markets. Both crude oil production and refinery runs are in favorable relation to market requirements, and the industry is steadily reducing gasoline stocks, while crude stocks also have continued to decline. Fuel oil storage also was reduced a little in the final week of August, after having been on a steady increase.

The gasoline stocks still are larger than desirable, but much progress has been made in reducing them and more is in prospect.

Fuel oil stocks are larger than prevailing consumption justifies, but demand is expected to improve if and when the autumn revival of business occurs, bringing larger industrial production and greater use of the heavy fuels. The lighter oils have remained in comparatively good demand, and the heavy consuming season for them, for heating, lies just ahead. Consequently, prices of the lighter oils last week showed some improvement, although the demand for the industrial fuels remained slow and prices sagged in some instances.

Demand for kerosene has been holding up fairly well, and prices have remained generally unchanged.

Crude and refined oil prices are revised

Both the crude oil and refined products divisions of the price structure were altered in the past week.

East Texas crude was generally posted at $1.25 a barrel, a 10 cent reduction from the previous prevailing price, effective August 29. The new posting was established under leadership of Humble Oil & Refining Company and Stanolind Crude Oil Purchasing Company.

At the same time, the Humble company made various other revisions of its schedule for Texas fields. Pettus, Southwest Texas, was given a 5 cent increase to $1.42 a barrel. Flour Bluff, Southwest Texas, was put on a flat price of $1.40 a barrel. It formerly had been on a gravity scale, ranging from $1.16 for below 31 gravity to $1.36 for 40 gravity and above. The company added Reagan, Gaines and Yoakum counties to its West Texas-New Mexico schedule, which ranges from 78 cents for below 26 gravity to $1.08 for 40 gravity and above.

Light Crudes Raised

The new schedule of Humble Oil & Refining Company also provided increases of 2 to 20 cents a barrel for oils between 40 and 50 gravity in several Texas districts, by extensions of the gravity scale, which formerly ended with 40 gravity and above.

Extension of the scale in West Central Texas, the Panhandle, and at Conroe, Tomball, Racoon Bend, and Satsuma, Gulf Coast, raised top prices 10 cents a barrel, the top listing now being 45 gravity and above. Similarly, the scale was extended to 50 gravity and above and the top price was raised 20 cents in the Refugio and Mirando districts of Southwest Texas and in the Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, and Turtle Bay fields, Coastal Texas.

CRUDE OIL PRICES

Complete tables of prices paid for crude oil at the well in principal fields are shown on pages 56 and 57 of this issue.

Pennsylvania Crude Cut

Pennsylvania grade crudes were further reduced 12 cents a barrel, after having been lowered several times previously within the past year. The new prices announced by South Penn Oil Company, effective September 1, are: Bradford and Allegheny district, $1.68; Southwest Pennsylvania pipe lines, $1.34; Eureka, $1.28; Buckeye lines, $1.18.

This constituted the sixth reduction in Pennsylvania Grade crude in a year, and brought quotations to the lowest level since July, 1933. Since the previous price reduction in Pennsylvania on June 13, daily production has averaged approximately 2500 barrels in excess of runs to stills. United States Bureau of Mines reports show stocks to have advanced from 5,889,000 barrels on June 11 to 6,180,000 barrels on August 20, bringing the current level to the highest since July, 1933. Shutdown of several refineries has aggravated the situation.

Rock Island Refining Company reduced the posting on Southern Oklahoma crude oil 10 cents a barrel September 1. The area affected is that in which purchases have been reduced by other buyers in recent weeks. The Rock Island company, with headquarters at Duncan, buys around 5000 barrels daily in Carter, Garvin and Stephens counties. Its new schedule is from 65 cents for oil of 20 to 20.9 gravity to

[*Continued on page 54*]

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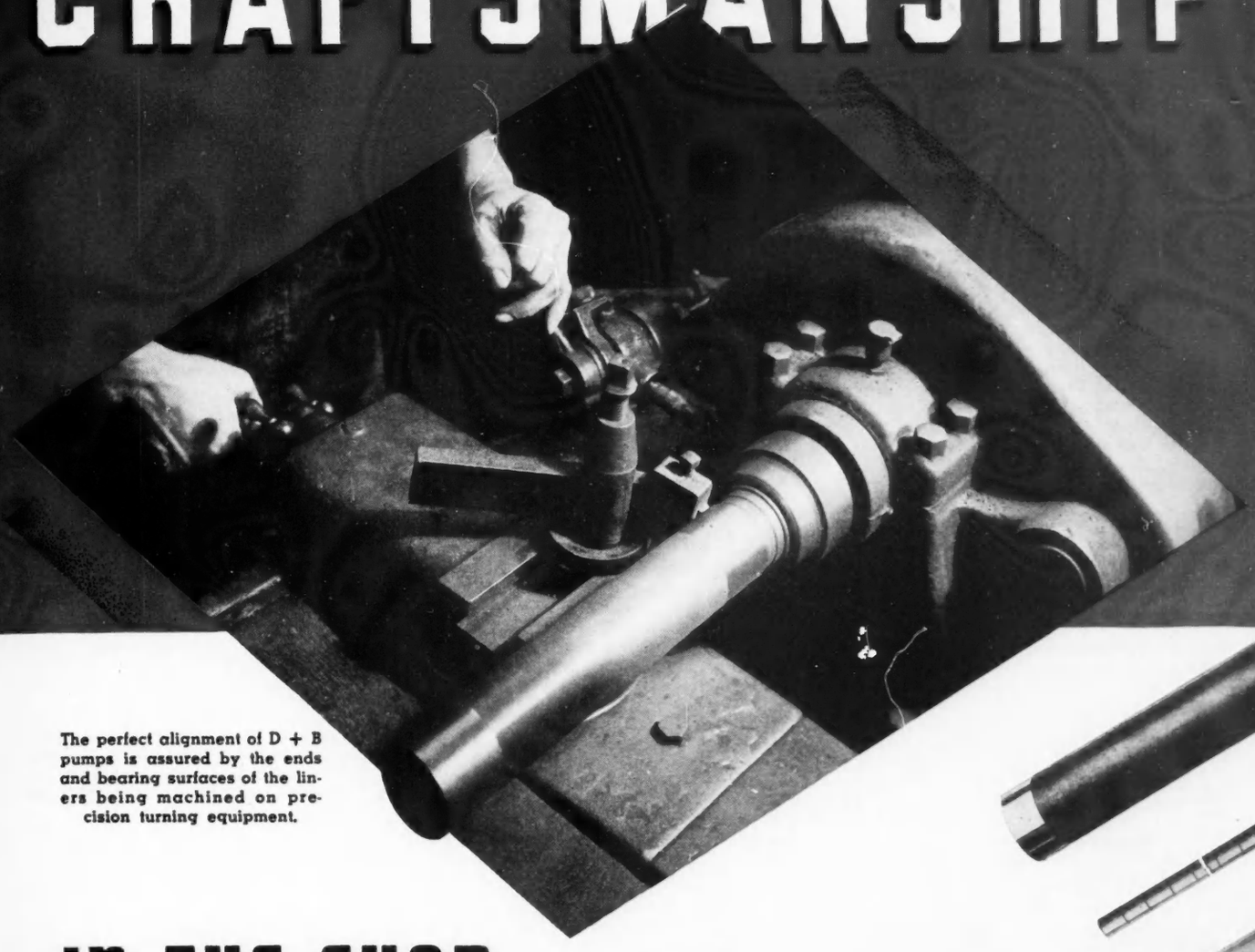

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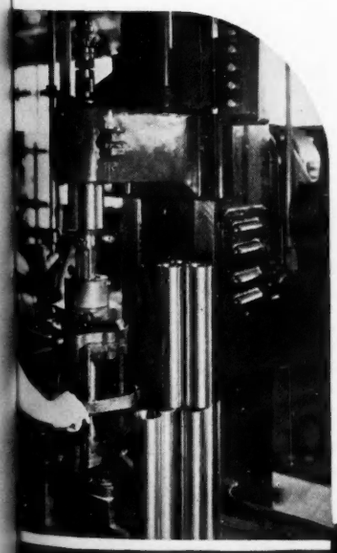

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CONTINENTAL

Allowable Picture

Leading states adopt stricter crude allowables for September . . . Texas leads movement with its return to two production holidays each week

Strict allowables are adopted for September

Exceptionally strict curtailment of crude oil production in the United States is scheduled under the September allowables of the leading producing states.

The six leading states, accounting for over 90 percent of the national production, have adopted September allowables which are in the aggregate 292,592 barrels a day, or 9.4 percent, under the estimated market demand for domestic crude (from wells and storage).

Under these allowables, it will be possible for the industry to make large withdrawals from above-ground stocks. The situation will afford the opportunity to cut surplus gasoline stocks down greatly, provided refinery runs are held down in line with the low production of crude. Failure to curb the refinery operations would result, on the other hand, in unusually large withdrawals of crude oil from storage.

In August the combined allowables of the six leading producing states were 128,016 barrels a day, or 4.1 percent, under the indicated market demand. And even with that degree of curtailment, gasoline stocks were reduced normally for the season of the year, and there was in addition some further reduction of crude oil stocks.

An accompanying table presents details of the September allowables by states, showing the relation of the quotas to the market demand as estimated by the Bureau of Mines.

Kansas sets September allowable below August

Daily allowable production for Kansas in September was fixed at 165,000 barrels by the Kansas Corporation Commission. The figure is 3000 barrels below the estimate of demand by the United States Bureau of Mines and 500 barrels below the allowable for August.

Texas returns to two days a week shutdown

By reducing Texas' September allowable 165,000 barrels daily below that of August, the Texas Railroad Commission has taken care of approximately one-half of the volume considered as the national over-supply. The reduction was achieved by extending the Sunday production holiday to also include Saturday, which means that there will be eight days during September when Texas wells should not produce.

The base allowable for September 1 was 1,649,493 barrels, and with this figure multiplied by 22 and divided by 30, the commission arrived at a daily average allowable of 1,233,248 barrels, which compares with the Bureau of Mines estimate of 1,398,600 barrels demand in Texas.

The general opinion in Texas was that the state had contributed her share and some more in correcting the current need for production reduction. The action was considered particularly important in view of the cutting of East Texas crude oil price 10 cents a barrel. Although the allowable of the East Texas field was not trimmed, it was felt that the curtailment of other areas, combined with the adjustment of prices, would create a larger demand for East Texas crude.

Saturday was added to the Sunday shutdowns in an effort to bring production and consumption to the proper level at this time of the year.

The order renewing the two day a week idleness, abandoned July 1, was signed by Commissioners C. V. Terrell and Ernest O. Thompson. Commissioner Lon A Smith was given an opportunity to sign it but declined. He issued a lengthy statement setting forth his reason for declining, among which were that Kansas had refused to cut production; that storage tanks over Texas were empty according to his information; and that he believed a one day shutdown would be sufficient.

Thompson said a return to Saturday shutdowns was necessary to eliminate pipe line proration and liquidate excessive stocks. Stocks of crude oil are much lower than a year ago but those of heating oils and gasoline are materially higher. The peak gasoline consuming season will end Labor Day.

The new order made but few substantial changes in district or field allowables. Figured on the basic allowable of 1,649,493 barrels daily, every district, except West Texas, was increased. However, the two day per week shutdown of production will result in a reduction of the actual yield. The allowables by districts are shown in an accompanying table.

Rodessa, drawing from a common pool with the Rodessa, Louisiana, field, was exempted from the closing orders, as in previous instances. It has not been considered fair to operators on the Texas side of Rodessa to require shutting in of their wells when neighbors across the state lines continue to produce.

Major increases for fields (figures not considering the two day a week shutdown which will result in declines in practically every instance) included: Ezzell, 2926; Heyser, 408; Plymouth, 206; Fairbanks, 465; Hull, old, 341; Humble, 217; Old Ocean, 341; Harper, 244; Goldsmith, 278; Wasson, 249; and Saxet, new (Frio), 294.

September Allowables Materially Under Bureau of Mines Estimates of Demand for Domestic Crude (from wells or storage)

(barrels daily)

STATE	Bureau of Mines Forecast of Demand	State Allowable Beginning of Month	Excess or Deficiency of State Allowable	Percent Excess or Deficiency
California	638,300	615,000	— 23,300	— 3.6
Kansas	168,000	165,000	— 3,000	— 1.8
Louisiana	255,300	260,260	+ 4,960	+ 1.9
New Mexico	111,600	106,000	— 5,600	— 5.0
Oklahoma	528,300	428,000	—100,300	—19.0
Texas	1,398,600	1,233,248	—165,352	—11.8
Total Six States	3,100,100	2,807,508	—292,592	— 9.4
Other States	344,200	.....	.....	.....
Total United States	3,444,300	.....	.....	.....

Comparison of Texas' Base Daily Allowable Allocations

(Figures do not take into consideration the shutting in of wells, which during July and August was for one day a week, and which will be two days weekly during September. Therefore, although an increase to 1,649,493 barrels is shown for September 1, actual production is expected to be brought down to 1,233,249 barrels daily.)

	DISTRICT	July 1, 1938	August 1, 1938	August 18, 1938	September 1, 1938
1	Southwest	33,042	33,180	34,245	36,854
2	Southwest	61,726	61,979	63,211	64,155
3	Gulf Coast	241,686	245,850	251,987	254,813
4	Southwest	183,737	185,455	189,646	191,796
5	East Central	30,887	30,566	30,266	30,616
6	East Central	79,438	80,528	81,176	81,547
	East Texas Field	512,037	513,893	514,741	516,147
7	West Central	48,277	49,771	50,472	49,659
7C	West Central	29,014	28,966	29,288	29,408
8	West Texas	217,508	219,671	223,997	223,578
9	North Texas	81,769	83,356	86,693	88,008
10	Panhandle	82,956	81,590	82,080	82,912
		1,602,086	1,614,805	1,637,802	1,649,493

Oil at Capitols

Election causes speculation on future of Texas proration as Democrats nominate two newcomers to positions exceedingly important to industry

New railroad commissioner and attorney general

What are the two newly arrived "Jerrys" going to do to the Texas oil industry when they assume office next January?

This was the question disturbing a good number of oil men last week, as Texas Democratic primary run-off election returns showed G. A. (Jerry) Sadler nominated for railroad commissioner over the veteran C. V. Terrell; and Gerald C. (Jerry) Mann nominated as attorney general. Their election was considered certain, as Texas is a stronghold of the Democrats.

Both men are unknown quantities in Texas political circles. Mann has been in public life almost since his graduation, but not in a position where his general attitudes toward proration could be studied. Sadler is a rank newcomer on the Texas political scene.

Offices Important

Both offices are very important to the oil industry at present. The Texas Railroad Commission is the most important state government body as far as oil is concerned. It is charged with drafting and regulating monthly production allowables and allocations, as well as field operating rules. The attorney general's office also is important, as it is the legal hand in enforcing the commission's orders, particularly those dealing with hot oil. Also, still in the Texas courts is the anti-trust ouster suit instituted against 17 concerns by Governor James V. Allred when he was attorney general.

Hence those interested in governmental regulation of the oil industry were studying the background and habits of the two newcomers in an effort to foresee their probable courses during their terms of office starting next January. This includes operators in scattered points of the nation, for Texas can "make or break" the industry, producing better than 40 percent of the United States' output.

Sadler's Position

The Texas Railroad Commission next January will be composed of Sadler, Colonel E. O. Thompson and Lon Smith. The important question was whether it would see the end of a Thompson-controlled commission, which has been in charge of oil conservation measures since the discovery of the East Texas field. Terrell and Thompson have formed the majority of the commission, while Smith has been in the minority. If Sadler teams with Thompson, things will be conducted as in the past, but if he should line up with Smith, important policy changes may be expected.

The industry has been prepared to expect almost anything from Sadler, but his statements since his election appear to be designed to allay any fears that the conservative element will be destroyed.

Sadler has stated he is willing to cooperate with Commissioner Thompson, which is the most important question being asked. He has expressed his opposition to the program of confiscating and selling hot oil at a price below the market, which is a position in which most conservatives will concur heartily. He has said he will not turn "the wells loose," and that most of the East Texas troubles come from the large number of permits to drill granted on exceptions to spacing rules, and in this he will find support from a good segment of the industry.

It may be anticipated, however, that when Sadler becomes commissioner next January, there will be a considerable upheaval in commission personnel. Commissioner Thompson has never been concerned about patronage. Commissioner Smith has complained bitterly that he has been denied his fair share of the patronage. It therefore follows that a large number of the present employees of the commission in all departments appointed by Commissioner Terrell are going to be replaced by Smith and Sadler appointments.

The effect of a general upheaval of patronage concerns the oil industry in that it might result in a period of confusion while new men are being broken in.

There is substantial evidence to the belief that Sadler and Thompson will get along on policies and that Sadler and Smith will get along on patronage, and that everybody will be happy about the whole thing.

Up for reelection two years from now will be the forthcoming chairman of the commission, Lon Smith. The circumstance that Smith will be seeking reelection two years from now may have an important influence on his attitude toward fixing allowables. Some observers point out that because of the political expediency, he cannot afford to do anything that would weaken proration or the oil markets; and that he may be obliged to team up with Thompson, if Sadler should not prove sufficiently conservative.

Furthermore, the threat of a new oil and gas commission probably will be a restraining influence for any and all members of the commission. For it appears unquestionable that a drive would be made to create a separate oil governing body if the revamped commission should upset the crude market and price structure.

An interesting sidelight has been advanced in the possibility that Thompson and Terrell, by continuing the Saturday shutdowns throughout this year, will turn the industry over to the new commissioner in an exceptionally good condition. The new commissioner could then insist upon a bigger outlet for East Texas without substantial injury to the market and then claim credit for serving not only East Texas, but the entire industry.

During his campaign, there was much gossip that Sadler would upset the conservative controlled commission, but much of the steam behind such talk seems to have disappeared in view of circumstances existing.

The 30-year-old commissioner nominee has never held any office before. He was reared on a farm in Anderson

G. A. (JERRY) SADLER

GERALD C. (JERRY) MANN

County, which is somewhat bigger than it was represented to be in the campaign, comprising about 2000 acres, and he has had a varied career of an adventurous young man. He went to the Teachers College at Nacogdoches, running a cleaning and pressing shop while attending college. He worked on pipe line and drilling rigs in South Texas and was a bell-hop in Houston. When the East Texas field was brought in, he went to the field as a refinery worker and gradually worked his way up to the status of an independent operator.

Sadler has a law license which he obtained the hard way—by studying at night. He represents himself to be, and is, a "country boy" from East Texas.

Mann Favors Independent

It is certain that Mann will lean toward the course of the independent operator, but all in all it is believed he will prove a conservative attorney general.

His chief act as secretary of state was to bring about the passage of Texas' current Blue Sky Law—the State's Securities Act, designed to put Texas on a par with other states in guaranteeing the integrity of securities offered to the general public. The law has been an eminently satisfactory one. It was amended after Mann had gone out of office by the last regular session in order to reduce the fees charged to deal in various types of oil securities.

The chief appeal of Mann's platform was to "drive the political racketeers" out of Austin. In many respects he resembles Allred, and those seeking a clue to his administration possibly might study that of his political godfather, Governor Allred—although it was believed that Allred did not support him for attorney general.

It is likely Jerry Mann will be in sympathy with the anti-trust ouster suit started a number of years ago by Governor Allred, when he was attorney general.

Mann is in his early 30's, a native Texan, graduate of Southern Methodist University and Harvard Law School. Some idea of his character may be indicated by the fact that he has served as a minister during his school years.

He came into the political limelight when Allred was first elected governor, having been a leader in the North Texas campaign for Allred. After the primaries in that year, Allred appointed him an assistant attorney general for the short time before changing offices, and when Allred became governor, Mann was appointed Secretary of State. Later he was named as Texas representative in Washington of the Texas Planning Board during the period when competition between the states became keen for government money.

McCraw allays fear will dump hot oil on market

The question of a possible dumping of hot oil in East Texas upon an already sagging market caused considerable concern in Texas' official circles last week and brought assurances that no such dumping program was contemplated.

The perturbation on the part of the oil industry appears to have grown indirectly out of last week's election and the uncertainty with which many oil men regarded the incoming state officials.

Although these officers will not take office for several months, there was a general feeling of anxiety which was culminated in a law suit at Austin by General American Company seeking to move 90,000 barrels of oil which the commission had refused to tender.

When this case was called for trial the anxiety was manifest by the fact that in the court room were Governor James V. Allred and Railroad Commissioner Ernest O. Thompson, as well as counselors for two East Texas oil companies which desired to intervene to protest the sale of this oil.

It was developed that the same oil is covered in one of the 30 odd confiscation suits which are now pending in Travis County District Court.

The suit will come up next Thursday, September 8.

On the day after this unprecedented turn-out of state officials, the newly elected railroad commissioner, G. A. (Jerry) Sadler, came to town with the statement that he was against any more confiscated oil being moved and he personally was going to stop it. The method of stopping it was to become an assistant under the Travis County district attorney and to appear before the Travis County grand jury with some mysterious information which he did not divulge. He also made a statement that a special session of the legislature to investigate the confiscation program was "in the air." The excitement was temporarily allayed when Governor Allred announced frankly that he contemplated no special session for such a problem, and Attorney General William McCraw announced that no one need fear any "dumping" of hot oil on the market.

McCraw threw considerable light on the entire picture by recalling that all the present confiscation suits were filed after a working agreement had been made with the railroad commission some 18 months ago and that since that date confiscated oil moving into commerce did not total more than 100,000 barrels.

McCraw's statement concerning the situation was particularly illuminating and appears in full in accompanying box.

Texas special session of legislature fades

The projected special session of the Texas legislature faded almost entirely away last week.

A week ago Governor James V. Allred had announced that he had requested PWA authorities for a 45 percent grant on a $2,600,000 state office building, and said that he would call a special session of the legislature to obtain the state's share if the PWA granted the application.

This announcement from Allred, coupled with some private dissatisfaction

Attorney General William McCraw's Statement Regarding Texas Hot Oil Situation

"Entirely unfounded are statements and intimations that the Attorney General's Department plans to dump on the market all existing illegal oil production through the Confiscation Act.

"The present policy governing disposition of so-called hot oil has been in effect for more than a year and a half. Since that time, it has not been changed and there are no changes under consideration. That policy was announced in a joint statement of Chairman C. V. Terrell of the Texas Railroad Commission and myself in the press February 18, 1937.

"This joint statement was issued simultaneously with the filing of thirty-seven suits seeking confiscation of approximately one million, seven hundred thousand barrels of excess oil production.

"The statement of policy agreed one receiver should be appointed to act in all these confiscation cases, and explained the purpose of instituting the batch of cases at once was to place all hot oil in Texas under court jurisdiction to prevent a wave of litigation attempting to move the hot oil into commerce.

"On the following day, Judge J. D. Moore appointed Gus Blankenship of Cherokee Court, receiver in all these cases. Each of Judge Moore's orders included the following explanation: 'Mr. Blankenship of Cherokee County is acceptable to the Attorney General and the Railroad Commission of Texas and recommended by them.'

"All suits that have been filed with a single exception, have been based upon information furnished by the Railroad Commission in accordance with our agreement made in February, 1937.

"The joint program further stipulated that in all these cases final judgment would be secured but that orders of sale would not be issued unless the market permitted. So far as the Attorney General's office is concerned, this agreement has been faithfully complied with.

"Judgments have been entered against a million, three hundred thousand barrels of oil to date. During this entire year one hundred thousand barrels have been sold. This oil was sold at public auction on the court house steps in each instance, except one wherein a receiver under order of the court, in order to prevent the oil from being washed away by flood waters, made a private sale. The oil in this exception however, has not passed into commerce and is now the subject of additional litigation.

"As a matter of fact, the cry about confiscation is largely imaginative. All oil ever sold under the Confiscation Act since its enactment in 1935 would hardly amount to two days production in Texas. This illegal production was largely in existence before I became attorney general. As attorney general, I did not recommend the enactment of confiscation law, but despite its weaknesses I have endeavored to administer the law in complete harmony with the conservation program of Texas. This I shall continue to do and no man in Texas need be disturbed for a single moment that there will be any dumping of large amounts of illegal production upon the market.

"It is ridiculous to say that confiscation has in any wise effected any drop in the market. This statement is more fully appreciated when we realize that only about one hundred thousand barrels of confiscated oil have been sold during this year. Bear in mind most of the confiscated oil has been subject to the deterioration of the weather and the accumulation of trash. It has not competed with fresh crude that sells at the top market price. Public sales have afforded the industry a full opportunity to bid. If the prices have been low, it was not because of that lack of opportunity to bid on the part of any person who wished to do so.

"Under the Confiscation Act it is mandatory upon the attorney general to bring suit when the existence of illegally produced oil is brought to his attention. The Texas Railroad Commission has reported to me practically all but a negligible amount of this hot oil. Under the law it was my duty to bring suit. I have done so. I have undertaken to carry out the mandate of the law and at the same time to proceed in a manner that would be in harmony with the general conservation program. Let all again be assured that there will be no dumping of 'hot oil' on the market."

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among a certain group of oil operators with the election, were apparently the only basis for a flood of reports which has filled Texas newspapers during the past week that a session of the Texas legislature was planned to take up the oil conservation situation.

The two rumors recurring most frequently were (1) that the special session would create a new oil and gas commission and (2) that the special session would prevent the handling of confiscated state oil. They kept on coming despite the unqualified denials by Governor Allred that he would call a session for any such purpose.

Late last week the governor said he was quite discouraged over the prospect of a session to get PWA matching funds as many members of the legislature and business men had publicly expressed their opposition to building a new state office building. They were of the opinion that the incoming governor would abolish so many state departments that no new office building would be needed.

In view of this sentiment, although the governor is still convinced of the need of an office building, he appeared about ready to call the whole thing off, particularly in view of the fact that the PWA requires that work on any project be under way by January 1.

The governor emphasized that he would call a session for no other purpose than the PWA building, and the best information in Austin was that there likely would be no session at all, barring an emergency.

Pipe Line News

Expect early start on construction of a 280-mile gasoline system from coast to interior of France

France plans 280-mile gasoline pipe line

A 280-mile gasoline pipe line, which will connect the Atlantic Coast with inland consuming centers of France, will be constructed soon, according to a report to the department of commerce from the office of the American trade commissioner at Paris.

This proposal, which has been under consideration for some time, has been approved by the so-called committee on fuels and will be made possible through money appropriated by the government for a public works program. This particular project, which is estimated to cost about 150,000,000 francs (approximately $4,125,000 at the current rate of exchange), will be undertaken under the auspices of the ministry of national defense and will be paid for with money alloted to the ministry.

The new pipe line will extend 450 kilometers from Saint-Mazaire to Montargia, following from the coast inland the valley of the Loire River. The line will be placed underground to prevent the possibility of destruction and will be used exclusively for the transport of gasoline. Actual construction is expected to begin in October.

Purchase Pure's South Oklahoma gathering lines

Purchase of the gathering system of Pure Oil Company in Healdton field, Oklahoma, was announced September 1 by Ben Franklin Refining Company, Ardmore. This concern recently bought the Ardmore refining plant of Wirt Franklin Petroleum Corporation, and is reconditioning it to put it in operation. The purchase includes 20 miles of trunk system, which will be taken over around September 15, when the plant will start operation.

Short line to give more outlet for Cotton Valley

Shreveport.—Atlas Pipe Line Corporation is laying a 6-inch welded line from its Gilark tank farm near Minden, Webster Parish, to the Cotton Valley field, Webster Parish, a distance of about 12 miles to provide new storage for H. L. Hunt, who is said to have found additional storage necessary after filling available tanks at New Orleans. Hunt is a large purchaser of Cotton Valley crude. Atlas Pipe Line Corporation does not contemplate entering Cotton Valley as a purchaser but is merely to transport the oil to storage for Hunt.

Gulf pipe line valuations

A valuation of $2,650,000 was placed last week by the interstate commerce commission on the property owned and used for common carrier purposes by Gulf Refining Company of Louisiana, which operates trunk and gathering lines in Louisiana and Arkansas.

The commission valued at $11,150,000 the property of Gulf Pipe Line Company of Pennsylvania, operator of trunk lines in Oklahoma, Missouri, Illinois, Indiana and Ohio.

Beaumont gas line planned by McCarthy

An application for a franchise to pipe gas into Beaumont, Texas, industrial district from the nearby West Beaumont field has been applied for by J. B. Chimene of Houston and George B. Morgan of Beaumont, representing Glenn H. McCarthy, Houston independent operator with holdings in the field.

Oil in the Courts

Texas initiates final drive to collect bonuses and rentals from lessors of state-owned lands.

File 63 suits in Texas oil bonus battle

A final drive to collect bonuses and rentals for the state from lessors of state lands in West Texas was initiated last week by Attorney General William McCraw.

A total of 63 suits were filed seeking to recover approximately $147,000 from lessors as one-half of the bonuses and rentals paid by them for leases to school lands.

The law under which these suits were filed was effective August 30, 1933, and provided that all suits must be filed within five years; hence the suits filed last week by McCraw will be the last of this type filed.

To attempt to collect bonuses and rentals from the lessors grows out of the Supreme Court opinion some years ago holding that school land owners in West Texas in making mineral leases used in the capacity of agent for the state and the state was entitled to one-half the bonuses and one-half the rentals paid by them for the leases. In every case, of course, this bonus and rental has been paid to the lessee, but the courts have also held the lessor was responsible for the payment to the state and the fact that they already had made payment to the lessee of the state's share did not relieve them of the obligation.

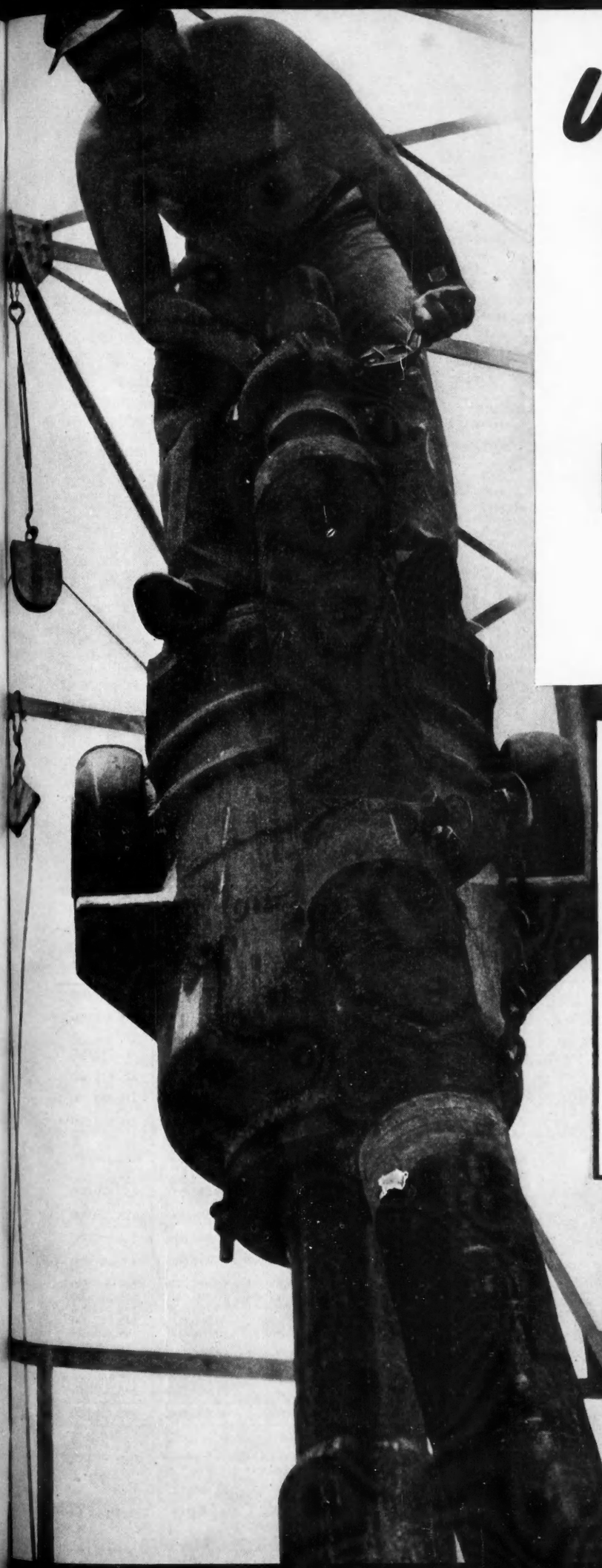
To get back the money it is necessary for them to sue the lessee which has been proved almost futile, since, in many cases, the lessees have long ago spent the money and have none left.

Restrict blowing of stripped gas into air at La Blanca

Five oil companies operating in the La Blanca field, Hidalgo County, have been restricted by Travis County District Court from blowing gas to the air after stripping the distillate.

The companies contended that they were forced to produce the distillate to protect themselves against drainage from the wild well in the field.

The companies enjoined were Ross Sterling Company, Atlantic Refining Company, Gulf States Oil Company, D. D. Oil Company, and Pantamo Petroleum Company.



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DU PONT

E. I. DU PONT DE NEMOURS & CO., INC., RUBBER CHEMICALS DIVISION, WILMINGTON, DELAWARE

Market Situation

[Continued from page 46]

$1.20 a barrel for oil of 40 gravity and above.

Refined Oil Prices

Minimum tank car prices for gasoline late last week were generally down ⅛ cent a gallon in both the Oklahoma refinery market and in the Chicago marketing area. Similarly, the maximum quotations were generally off the same amount. In East Texas the prices held mostly unchanged.

Kerosene was offered ⅛ cent a gallon lower by some Oklahoma refiners, although demand was holding up fairly well.

The lighter fuel oils were in good demand, and bottom prices were marked up ⅛ cent a gallon in the Chicago territory. The industrial fuel oils, however, moved slowly, and prices tended to sag.

Natural Gasoline

Natural gasoline, grade 26-70, was priced generally in the Mid-Continent markets f.o.b. refineries at 3¼ cents a gallon, and sales were reported at the same price f.o.b. Breckenridge, Texas.

Gasoline at Refineries

U. S. motor gasoline ranged in the Oklahoma market last week about as follows: 62 octane and below 4½ to 5 cents a gallon; 63 to 66 octane, 4¾ to 5⅛ cents; 67 to 69 octane, 5 to 5⅜ cents; 70 to 72 octane, 5¼ to 5¾ cents.

Corresponding prices in the Chicago markets were 4⅛ to 4¾ cents, 4⅜ to 5 cents, 4⅝ to 5¼ cents and 4⅞ to 5½ cents.

In East Texas the most common gasoline, 60-62, 400 end point was priced generally from 4½ to 4⅝ cents a gallon.

Kerosene prices f.o.b. Oklahoma refineries ranged from 4 to 4¼ cents a gallon for the 41-43 water white grade, and from 4¼ to 4⅝ cents for the 42-44 water white grade; and corresponding prices in the Chicago market were 3½ to 4¼ cents and 3⅝ to 4⅛ cents.

Fuel Oil

Fuel oil prices were not materially changed in the past week. In the Chicago market range oil was priced from 3⅝ to 4⅛ cents a gallon. The No. 1 white oil was priced from 3½ to 4 cents, and No. 1 straw from 3½ to 3¾ cents. No. 2 straw was 3⅜ to 3¾ cents. No. 3 oil was 3¼ to 3⅜ cents. No. 5 oils were 60 to 70 cents a barrel. The No. 6 oil was quoted at 35 to 50 cents a barrel.

Weekly statistics show good conditions prevail

The latest weekly statistics of the petroleum industry were predominantly favorable, having indicated further substantial decreases in stocks of gasoline and crude oil, a halting of additions to fuel oil storage, and continued relatively low crude production and refinery runs.

Crude oil stocks have dropped to a new 15-year low level, being the smallest since 1923.

Gasoline storage, through another million-barrel reduction in a week, has come down within 7.1 percent of last year's weekly curve.

Fuel oil stocks still are exceptionally high, but they were reduced contraseasonally in the closing week of August.

Production and Runs

United States crude oil production averaged 3,388,000 barrels daily in the week ended August 27, having declined a few thousand barrels from the previous week's level. The output was then 9.2 percent lower than in the corresponding week last year.

Crude oil runs to stills meanwhile dropped 10,000 barrels to 3,255,000 barrels daily and were about 5 percent lower than in the comparable week last year.

Gasoline Stocks Down

With refinery activity moderate, the industry took another million barrels of gasoline out of storage in the week ended August 27, cutting supplies to 71,754,000 barrels, which was 7.1 percent more than the 66,997,000 barrels on hand a year previously. That was too much gasoline, considering that demand is running only at about the same level as last year.

Fuel oil inventories, hitherto steadily increasing, were reduced 200,000 barrels in the week of August 27, coming down to 146,926,000 barrels. The latter figure was 31.1 percent larger than that of total fuel oil stocks on hand a year before, whereas fuel oil demand has been running lower this year than last year.

Despite the moderate refinery runs, the prevailing low level of crude oil production necessitated dipping into crude storage by the refineries in the week ended August 20, when the nation's crude inventories were reduced a million barrels. Dropping to 285,136,000 barrels, the crude stocks were the lowest for 15 years, or since 1923.

Five-day week may relieve K-M-A pipe lines

Partial removal of pipe line proration restrictions in the K-M-A deep area, North Texas, is expected to follow the enforcement of 5-day production weeks during September. The base allowable for the 706 Strawn producers was placed at 20,926 barrels daily, according to the September schedule prepared by Jack T. Elliott, deputy supervisor. The ban on Saturday and Sunday production will cut the field's quota to 14,948 barrels daily, exclusive of the cut imposed by all but one of the purchasers.

The leading buyers limited their runs to 75 percent of the allowable effective August 1. This cut along with Sunday production holidays lowered the well allowable to approximately 21 barrels daily. The base allowable of 32 barrels per well set for August was continued by the commission on its September schedule. It is reported that buyers will step up their runs to 90 percent of the allowable.

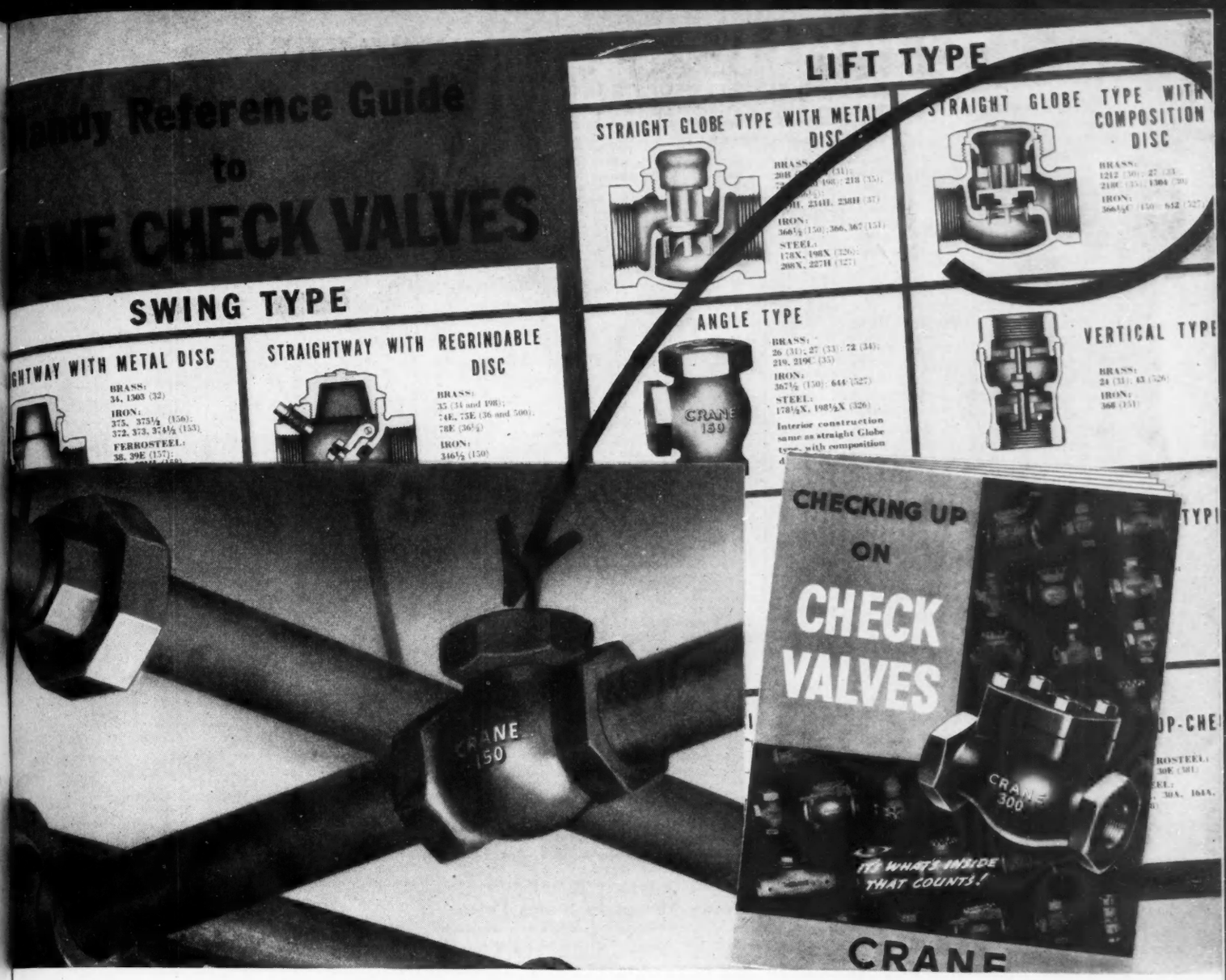
K-M-A has added 559 wells during the past 6 months, and the producing acreage within this period has increased from 2643

Trends of United States Production and Stocks

Figures are from American Petroleum Institute weekly reports, except those on crude stocks, which are from Bureau of Mines weekly reports

WEEK ENDED	Crude Oil Production (Barrels Daily)	Crude Runs to Stills (Barrels Daily)	Crude Oil Stocks (Barrels)	Gasoline Stocks (Barrels)	Gas & Fuel Oil Stocks (Barrels)
August 29, 1937	*3,731,450	3,425,000	309,506,000	66,997,000	112,111,000
September 25	3,666,300	*3,455,000	307,974,000	65,620,000	116,472,000
October 2	3,647,450	3,400,000	309,036,000	65,266,000	117,076,000
October 30	3,602,950	3,345,000	307,140,000	66,836,000	121,070,000
November 27	3,425,800	3,325,000	304,156,000	68,544,000	121,616,000
December 25	3,492,600	3,245,000	303,294,000	74,437,000	118,659,000
January 1, 1938	3,436,600	3,320,000	303,468,000	77,291,000	118,660,000
January 29	3,357,650	3,170,000	304,286,000	84,844,000	118,793,000
February 26	3,322,800	3,170,000	305,167,000	90,719,000	120,958,000
March 19	3,322,550	3,080,000	306,380,000	*93,192,000	122,067,000
March 26	3,405,600	3,080,000	307,557,000	92,858,000	122,979,000
April 30	3,396,150	3,215,000	307,147,000	91,339,000	128,270,000
May 28	3,098,650	3,150,000	301,583,000	87,946,000	134,315,000
June 25	3,083,900	3,025,000	293,463,000	82,412,000	137,801,000
July 2	3,058,550	3,095,000	291,666,000	80,634,000	138,903,000
July 9	3,296,250	3,095,000	290,469,000	79,893,000	140,587,000
July 16	3,343,100	3,195,000	289,310,000	78,721,000	142,068,000
July 23	3,349,050	3,180,000	287,585,000	76,366,000	143,041,000
July 30	3,316,400	3,240,000	288,514,000	76,864,000	144,294,000
August 6	3,317,850	3,215,000	287,406,000	75,380,000	144,699,000
August 13	3,359,900	3,295,000	286,251,000	74,387,000	146,261,000
August 20	3,392,700	3,265,000	285,137,000	72,709,000	147,180,000
August 27, 1938	3,388,500	3,255,000	.....	71,754,000	146,926,000
August 28, 1937	3,731,450	3,425,000	†309,699,000	66,997,000	112,111,000
Change in past year	—9.2%	—4.9%	—7.9%	+7.1%	+31.1%

* All time peak. † Stocks, August 21, 1937.



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CRUDE OIL PRICE SCHEDULES

(Figures Revised to September 2, 1938)

MID-CONTINENT GRAVITY SCALE PRICES

(Posted January 28, 1937, except classifications above 40 gravity, which were made August 29, 1938, by Humble Oil & Refining Co.)
(Some fields of Mid-Continent have flat price postings, and are shown separately)

Gravity	Okla.-Kans.	[7]North La.-Ark.	Rodessa, La.-Tex.	North & W. Central Tex.	East Central Tex.	Gray Co. Tex.	Carson Hutchinson Co. Tex.	[1]Conroe Tex. Type	West Tex.-N. Mex.	[2]Gulf Coast (Tex.-La.)	[3]Some La. Gulf Areas	[4]Anahuac, Tex. Type	[5]Refugio, Tex. Type	[6]Mirando, Tex. Type
17–17.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	*$0.90	.....	.....	.....
18–18.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.92	.....	.....	.....
19–19.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.94	.....	.....	.....
20–20.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	*$0.95	.96	.....	*$1.01	*$0.96
21–21.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.98	.98	.....	1.03	.98
22–22.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.01	1.01	.....	1.05	1.00
23–23.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.04	1.04	.....	1.07	1.02
24–24.9	*$0.98	*$0.90	*$0.93	*$0.88	.....	.....	.....	.....	.....	1.07	1.07	.....	1.09	1.04
25–25.9	1.00	.92	.95	.90	.....	.....	.....	.....	*$0.78	1.10	1.10	.....	1.11	1.06
26–26.9	1.02	.94	.97	.92	.....	.....	.....	.....	.80	1.13	1.13	.....	1.13	1.08
27–27.9	1.04	.96	.99	.94	.....	.....	.....	.....	.82	1.15	1.15	$1.10	1.15	1.10
28–28.9	1.06	.98	1.01	.96	*$1.03	.....	.....	*$1.20	.84	1.17	1.17	1.12	1.17	1.12
29–29.9	1.08	1.00	1.03	.98	1.05	.....	.....	1.22	.86	1.19	1.19	1.14	1.19	1.14
30–30.9	1.10	1.02	1.05	1.00	1.07	.....	.....	1.24	.88	1.21	1.21	1.16	1.21	1.16
31–31.9	1.12	1.04	1.07	1.02	1.09	.....	.....	1.26	.90	1.23	1.23	1.18	1.23	1.18
32–32.9	1.14	1.06	1.09	1.04	1.11	.....	.....	1.28	.92	1.25	1.25	1.20	1.25	1.20
33–33.9	1.16	1.08	1.11	1.06	1.13	.....	.....	1.30	.94	1.27	1.27	1.22	1.27	1.22
34–34.9	1.18	1.10	1.13	1.08	1.15	*$0.96	*$0.91	1.32	.96	1.29	†1.29	1.24	1.29	1.24
35–35.9	1.20	1.12	1.15	1.10	1.17	.98	.93	1.34	.98	1.31	.....	1.26	1.31	1.26
36–36.9	1.22	1.14	1.17	1.12	1.19	1.00	.95	1.36	1.00	1.33	.....	1.28	1.33	1.28
37–37.9	1.24	1.16	1.19	1.14	1.21	1.02	.97	1.38	1.02	1.35	.....	1.30	1.35	1.30
38–38.9	1.26	1.18	1.21	1.16	1.23	1.04	.99	1.40	1.04	1.37	.....	1.32	1.37	1.32
39–39.9	1.28	1.20	1.23	1.18	1.25	1.06	1.01	1.42	1.06	1.39	.....	1.34	1.39	1.34
40 & Above	1.30	1.22	1.25	1.20	1.27	1.08	1.03	1.44	1.08	1.41	.....	1.36	1.41	1.36
[8]40–40.9	.....	.....	.....	1.20	.....	1.08	1.03	1.44	.....	.....	.....	1.36	1.41	1.36
41–41.9	.....	.....	.....	1.22	.....	1.10	1.05	1.46	.....	.....	.....	1.38	1.43	1.38
42–42.9	.....	.....	.....	1.24	.....	1.12	1.07	1.48	.....	.....	.....	1.40	1.45	1.40
43–43.9	.....	.....	.....	1.26	.....	1.14	1.09	1.50	.....	.....	.....	1.42	1.47	1.42
44–44.9	.....	.....	.....	1.28	.....	1.16	1.11	1.52	.....	.....	.....	1.44	1.49	1.44
45 & Above	.....	.....	.....	1.30	.....	1.18	1.13	1.54	.....	.....	.....	.....	.....	.....
45–45.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.46	1.51	1.46
46–46.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.48	1.53	1.48
47–47.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.50	1.55	1.50
48–48.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.52	1.57	1.52
49–49.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.54	1.59	1.54
50 & Above	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.56	1.61	1.56

* Minimum price and applies also to purchases of lower gravity.

† Maximum price and applies also to purchases of higher gravity.

[1] Conroe, Tomball, Satsuma, Raccoon Bend deep fields.

[2] Upper Texas Gulf Coast, including Goose Creek, Spindle Top, etc., and some fields of Louisiana Gulf Coast, including Black Bayou, White Castle, Vinton, Hackberry, etc., except that top price for those Louisiana fields is $1.29 for 34 gravity and above.

[3] Choctaw, Darrow, Lockport, Iowa (Magnolia posting), Cameron Meadows, etc.

[4] Anahuac, Dickinson, Gillock, Cedar Point, Fairbanks, Turtle Bay.

[5] Lower Texas Gulf Coast, including Refugio, Saxet, etc. Posted 7-6-37.

[6] Duval, Jim Hogg, Webb and Zapata Counties; Heyser, Placedo fields. Posted 7-6-37.

[7] Prices are 7 cents lower than here shown in Buckner, Magnolia and Village fields, Arkansas.

[8] Humble Oil & Refining Co., August 29, 1938, initiated classifications above 40 gravity.

Mid-Continent Flat Prices

	Flat Price	Date Posted
Arkansas:		
Smackover	$0.90	1–28–37
Louisiana:		
Garden Island	1.37	1–28–37
Lafitte	1.24	1–28–37
Texas:		
East Texas	1.25	8 29 38
Talco	.73	1–28–37
Livingston, Cleveland	1.27	1–28–37
Hardin	1.15	1–28–37
Van	1.10	1–28–37
Pettus	1.42	8 29 38
Pecos County	.91	1–28–37
Pecos Shallow	.81	1–28–37
Luling	1.00	1–28–37
Lytton Springs	1.12	1–28–37
Salt Flat, Darst Creek, Hilbig, Carroll, Clark, Zoboroski	1.09	1–28–37
Flour Bluff	1.40	8–29–38
Seabreeze	1.25	1–28–37
Willow Slough	1.25	1–28–37

Michigan Prices

Central Michigan	$1.27	7–24–37

Middle West Prices

Lima, Ohio	$1.00	11–20–37
Illinois	1.35	1–28–37
Princeton	1.35	1–28–37
Western Kentucky	1 30	6 22 38

Rocky Mountain States Prices

	Flat Price	Date Posted
Colorado:		
Ft. Collins and Wellington, Light	$1.01	1–28–37
Ft. Collins and Wellington, Heavy	1.25	1–28–37
Cannon City and Florence	1.10	1–28–37
Iles, Light	1.18	1–28 37
Iles, Heavy	1.12	1–28–37
Montana:		
Cat Creek	1.30	1– 1–38
Cut Bank	1.35	6– 3–36
Pondera	1.05	9–29–33
Sunburst	.90	11–16–37
***New Mexico:**		
Hogback	1.33	1–28–37
Wyoming:		
Big Muddy	1.18	1 28–37
Elk Basin	1.05	7 8 38
Frannie, Light	.65	5– 1–38
Frannie, Heavy	.62	11– 4–36
Graybull-Torchlight	1.30	1–28–37
Grass Creek, Light	1.05	7 8 38
Grass Creek, Heavy	.50	5 1 38
Hamilton Dome	.45	5 1 38
Lance Creek	.97	1–28–37
Osage	1.30	1– 1–37
Rock Creek	1.20½	1–28–37
Salt Creek, Tensleep	70	1 6–38

* Also see Mid-Continent Gravity-Scale Schedule above.

Pennsylvania Prices

Bradford-Allegheny	$1.68	9– 1–38
National Transit Lines	1.68	9– 1–38
Sw. Pa. Pipe Line	1.34	9 1 38
Eureka Pipe Line	1.28	9 1 38
Buckeye Pipe Line	1.18	9 1 38
Corning Grade	1.17	6 16 38

Prices Outside United States

Canada:		
Petrolia	$2.10	9– 9–33
Oil Springs	2.17	9– 9–33
Mexico:		
F.O.B. Tampico; net; U. S. Currency, buyer pays tax	85	Feb., 1938

Major Price Changes

	Penna. (Nat. Tr.)	Mid.-Cont. (36 Gr.)	Calif. (26 Gr.)
June 19,1933	Up 10	Up 19	.....
June 26, 1933	Up 10	.....	Up 9-12
July 6, 1933	Up 13	Up 10	.....
July 17, 1933	Up 15	.....	.....
July 28, 1933	Up 15	.....	.....
August 11, 1933	Up 10	.....	.....
August 24, 1933	.....	Up 10	.....
August 30, 1933	Up 15	.....	.....
September 6, 1933	Up 10	Up 10	Up 15
September 8, 1933	.....	Up 15	.....
May 1, 1934	Up 10	.....	.....
November 6, 1934	Cut 25	.....	.....
December 6, 1934	Cut 25	.....	.....
January 4, 1935	Up 15	.....	.....
February 4, 1935	Up 15	.....	.....
May 16, 1935	Cut 15	.....	.....
June 26, 1935	Cut 15	.....	.....
July 16, 1935	Cut 10	.....	.....
August 29, 1935	.....	.....	Cut *1
September 6, 1935	Up 5	.....	.....
October 29, 1935	Up 15	.....	.....
November 1, 1935	.....	.....	Up *28
November 18, 1935	Up 15	.....	.....
December 6, 1935	.....	.....	Up *9
January 9, 1936	.....	Up 10	.....
January 13, 1936	Up 15	.....	.....
February 26, 1936	.....	.....	Up †5
December 28, 1936	Up 12	.....	.....
January 28, 1937	.....	Up 12	.....
February 24 1937	Up 10	.....	.....
June 7, 1937	Up 15	.....	.....
September 1, 1937	Cut 22	.....	.....
October 12, 1937	Cut 25	.....	.....
December 1, 1937	Cut 15	.....	.....
March 7, 1938	Cut 17	.....	.....
June 13, 1938	Cut 25	.....	.....
Sept. 1, 1938	Cut 12	.....	.....

* Signal Hill 26 gravity. † Seal Beach 26 gravity.

Crude Production Taxes

Oklahoma—Five percent of gross value less royalty interest.

Texas—2¾ cents or 2¾ percent, whichever is higher.

Louisiana—From four to 11 cents a barrel, depending upon gravity.

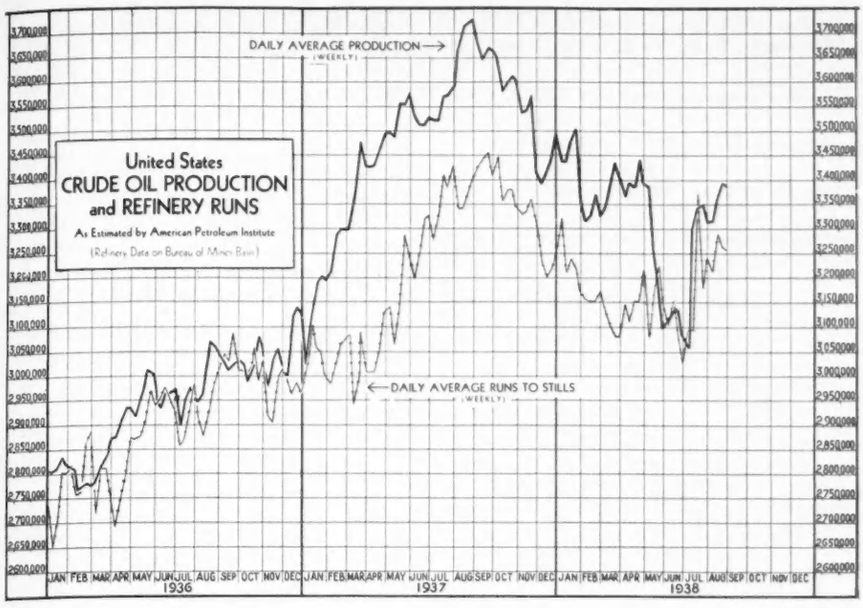
Arkansas—2.6 percent of gross market values.

Montana—Two percent of gross value at well and 3/8 of 1c per barrel.

New Mexico—Severance tax of 2 percent on oil and gas.

Wyoming and New Mexico—Production tax based upon state and county assessments.

California—.66443 mills per barrel of oil produced and 17.39 cents an acre on proved lands.



acres to 12,343 acres, with a maximum of 20 acres assigned to each producer. These figures do not include undeveloped units within the field proper.

Carter starts buying crude in Illinois fields

Carter Oil Company, through facilities of the Oklahoma Pipe Line Company, September 1 became a purchaser of crude oil in Illinois, when it posted $1.35 per barrel in the Loudon field. In connection with the entry as a purchaser, the concern announced conditions under which it has drilled in the field and provisions for ratable taking between its own properties and those of other producers.

"First of all," the announcement read, "we have developed our properties on

[*Continued on page 77*]

Shutdown to help East Texas wells

Market relief for the approximately 200 unconnected wells in the East Texas field will likely be provided by the leading pipe line companies as result of the reinstatement of the 5-day production weeks during September. The production holidays are enforced more effectively in this field than any other important area in the state since no exceptions are granted for water wells, etc.

The short production week does not permit some of the larger producers and buyers to supply their actual demand for East Texas crude. These concerns made heavy withdrawals from reserve stocks when the output was previously restricted to a 5-day week, and will be caught short if the holidays are continued indefinitely.

Preliminary investigation reveals that Arkansas and North Louisiana crudes will continue to move into the East Texas field and compete with the latter in the face of 10-cent price cut. The United Pipe Line Company is currently delivering Rodessa crude at an average rate of 18,000 barrels daily via an 8-inch line to the East Texas field on long term contracts held with Shell Petroleum Corporation and Atlantic Petroleum Purchasing Corporation.

Atlas Pipe Line Company, which is affiliated with Lion Oil Refining Company, is delivering an average of 11,300 barrels of Schuler, Arkansas, crude daily on consignment to East Texas refineries and to The Pure Oil Company. The latter recently enlarged its original Schuler purchase contract.

CALIFORNIA CRUDE OIL PRICES

(Posted February 26, 1936; except El Segundo and Wilmington, posted October 15, 1937, and Greeley and Canal posted July, 1938). All gravity above those quoted take highest prices of that field.

Gravity	El Segundo & Signal Hill	Seal Beach Alamitos Heights	Huntington Beach	Inglewood	Playa Del Rey	Olinda Brea Canyon	Athens Rosecrans	Torrance	Richfield	Whittier East Coyote La Habra	Montebello	West Coyote Hills	Santa Springs	New Hall McKittrick Kern River Round Mountain	Greeley, Canal	Mountain view	Midway-Sunset Buena Vista Hills Elk Hills	Lost Hills	Coalinga	Wheeler Ridge	Wilmington
14–14.9	$.80	$.79	$.78	$.79	$.80	$.76	....	$.80	$.76	$.76	$.77	$.78	....	$.70	....	....	$.70	$.70	$.70	....	$.75
15–15.9	.80	.79	.78	.79	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.75
16–16.9	.80	.79	.78	.79	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.75
17–17.9	.80	.79	.78	.81	.80	.76	....	.80	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.77
18–18.9	.80	.79	.78	.84	.80	.78	....	.82	.76	.76	.77	.78	....	.70	....	....	.70	.70	.70	....	.79
19–19.9	.82	.79	.82	.87	.84	.81	....	.85	.76	.78	.77	.78	....	.70	....	$.70	.74	.74	.71	$.70	.82
20–20.9	.85	.79	.85	.90	.88	.84	....	.88	.78	.82	.77	.80	....	....	....	.70	.78	.78	.72	.70	.85
21–21.9	.88	.79	.89	.93	.93	.88	....	.91	.80	.85	.77	.84	$.78	....	....	.73	.82	.82	.74	.70	.88
22–22.9	.92	.82	.92	.96	.98	.92	....	.93	.84	.89	.79	.88	.78	....	....	.77	.87	.86	.78	.72	.92
23–23.9	.95	.86	.96	.99	1.02	.96	$.84	.96	.88	.93	.82	.92	.78	....	....	.80	.92	.90	.82	.76	.95
24–24.9	.99	.91	1.00	1.02	1.06	.99	.88	.99	.91	.96	.85	.96	.82	....	....	.84	.97	.94	.86	.79	.99
25–25.9	1.03	.95	1.03	1.05	1.11	1.03	.93	1.02	.95	...	.89	.99	.86	....	....	.88	1.01	.98	.90	.83	1.03
26–26.9	1.06	1.00	1.07	1.09	1.16	1.06	.98	1.05	.98	...	.92	1.03	.90	Elwood	....	.91	1.06	1.02	....	....	1.06
27–27.9	1.10	1.05	1.11	1.12	....	1.10	1.03	....	1.02	...	.96	1.06	.95	Terrace	$.91	.95	1.10	1.06	....	....	1.10
28–28.9	1.14	1.10	1.14	1.15	....	1.14	1.07	....	1.06	...	.99	1.10	.99	....	.94	.99	1.15	1.10	....	....	1.14
29–29.9	1.17	1.15	1.18	1.18	F.O.B.	1.17	1.12	....	1.09	...	1.03	1.14	1.03	....	.98	1.02	1.20	1.14	....	....	1.17
30–30.9	1.21	1.19	1.22	1.21	Pipe	1.21	1.17	....	....	....	1.07	1.17	1.08	F.O.B.	1.02	1.06	1.25	1.18	....	....	1.21
31–31.9	....	....	....	1.24	Line	1.24	1.22				1.11	1.21	1.12	Ship	1.06	1.09	1.29	....	....	....	....
32–32.9	....	....	....	1.27	....	1.27	1.27	Kettleman Hills			1.14	1.25	1.16	....	1.09	1.13	1.34	....	....	....	....
33–33.9	....	....	....	....	....	....	1.32	1.19			1.18	1.28	1.20	1.28	1.13	1.17	1.38	....	....	....	....
34–34.9	....	....	....	....	....	....	1.37	....	1.23	...	1.22	1.32	1.25	1.32	1.17	1.20	....	....	....	....	....
35–35.9	....	....	....	....	....	....	1.42	....	1.27	...	1.25	....	1.29	1.35	1.20	....	....	....	....	....	....
36–36.9	....	....	....	....	....	....	1.46	....	1.31	...	1.29	....	1.33	1.39	1.24	....	....	....	....	....	....
37–37.9	....	....	....	....	....	....	1.51	....	1.35	...	1.32	....	1.37	1.43	1.28	....	....	....	....	....	....
38–38.9	....	....	....	....	....	....	1.56	....	1.39	...	1.36	....	1.42	....	1.31	....	....	....	....	....	....
39–39.9	....	....	....	....	....	....	1.61	....	1.43	...	1.40	....	....	....	1.35	....	....	....	....	....	....
40–40.9	....	....	....	....	....	....	1.66	....	....	...	1.43	....	....	....	1.39	....	....	....	....	....	....
41–41.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.43	....	....	....	....	....	....
42–42.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.46	....	....	....	....	....	....
43–43.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.50	....	....	....	....	....	....
44–44.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.54	....	....	....	....	....	....
45–45.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.57	....	....	....	....	....	....
46–46.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.61	....	....	....	....	....	....
47–47.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.65	....	....	....	....	....	....
48–48.9	....	....	....	....	....	....	....	....	....	...	....	....	....	....	1.68	....	....	....	....	....	....

Crude Production

Decrease of 177,650 barrels daily brings U. S. total to 3,198,775 barrels; Texas is shut in Saturday

REFLECTING the renewal of Saturday shut-downs for all Texas oil fields, in addition to the already existing Sunday shut-downs, United States crude oil production took a sharp dip during the week ended September 3, when the daily output averaged 3,198,775 barrels. The new level represented a decrease of 177,650 barrels daily as compared with the previous week, and was 239,325 barrels lower than the Bureau of Mines estimated demand for domestic crude.

Although the industry has enjoyed a fairly healthy condition in the past, the above precaution to maintain firm prices has thus been taken to further decrease excess storage of crude oil. As most of the principal producing states have either decreased or left their allowables for September unchanged, it is expected that the daily production during the month will be approximately 180,000 barrels less than in August.

Sharp declines in last week's production occurred in Texas, California, Kansas and Oklahoma, while Louisiana produced slightly more than in the previous week.

Texas production took a dip of 155,350 barrels daily, the first Saturday shutdown having taken effect September 3. The new level of 1,237,750 barrels a day was 140,050 barrels less than the Bureau of Mines recommendation for August and 156,519 less than the August state allowable. However, daily production exceeded the state allowable for September by 4502 barrels.

California output was down 23,600 barrels from the previous week's level in averaging 651,700 barrels a day and conformed closely with the Bureau of Mines estimate of demand, while it was 36,700 barrels above the recommendation of the Central Committee of California Oil Producers.

Louisiana averaged 265,050 barrels daily, 2150 more than in the previous week, 8950 barrels more than the Bureau of Mines recommendation and 8335 barrels more than the allowable prescribed by the state.

Oklahoma showed a decrease of 4650 barrels having averaged 432,400 barrels a day, which was 97,300 barrels less than the federal allocation and 4400 barrels more than the state allowable.

Kansas last week averaged 161,200 barrels daily, which was 4175 less than in previous week, 8100 barrels less than the Bureau of Mines recommendation and 4300 barrels less than the state allowable.

Natural gasoline plant in Foster field explodes

Midland, Texas.—Barnsdall Oil Company's absorption type natural gasoline plant in the Foster field, Ector County, was almost completely destroyed August 30 when a series of explosions showered the property with burning gasoline. Three employes, including R. H. Brooks, 30; Glen Carlton, 20; and G. T. Scott, 19, were fatally burned, and five others were seriously injured. The plant, rated at 6,000,000 cubic feet daily, was placed in operation last February.

Texas gas allowables for September fixed

Gas allowables fixed by the Railroad Commission last week for the three Texas fields which are prorated by the Railroad Commission are as follows:

West Panhandle (sour)....633,794 mcf
East Panhandle (sweet).... 98,670 mcf
Rodessa ..... 51,999 mcf

United States Crude Oil Production

Estimates Compiled by THE OIL WEEKLY

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in August)	State Allowable in August	BARRELS DAILY FOR WEEK ENDED Sept. 3	Aug. 27
TEXAS—				
Texas Panhandle	.....	.....	73,600	73,400
North Texas	.....	.....	75,900	75,100
West Central Texas	.....	.....	28,850	29,600
West Texas	.....	.....	195,200	220,200
East Central Texas	.....	.....	89,200	97,700
East Texas Field	.....	.....	367,800	440,900
South Texas	.....	.....	214,500	237,400
Texas Gulf Coast	.....	.....	192,700	218,800
Total Texas	1,377,800	1,394,269†	1,237,750‡	1,393,100
CALIFORNIA—				
Long Beach	.....	.....	57,000	56,000
Santa Fe Springs	.....	.....	31,900	31,700
Huntington Beach	.....	.....	32,300	30,700
Dominguez	.....	.....	24,200	25,600
Ventura Avenue	.....	.....	36,400	34,700
Midway-Sunset	.....	.....	53,600	65,400
Kettleman Hills	.....	.....	63,400	61,300
Wilmington	.....	.....	90,500	93,900
Others	.....	.....	262,400	276,000
Total California	649,300	615,000*	651,700	675,300
OKLAHOMA—				
Oklahoma City	.....	.....	95,925	96,775
Seminole Area	.....	.....	93,650	98,375
Fitts	.....	.....	36,900	40,725
Others	.....	.....	205,925	201,175
Total Oklahoma	529,700	428,000	432,400	437,050
LOUISIANA—				
North Louisiana	.....	.....	78,350	80,400
South Louisiana	.....	.....	186,700	182,500
Total Louisiana	256,100	256,715	265,050	262,900

DISTRICT OR STATE	Bureau of Mines Recommendation (Daily in August)	State Allowable in August	BARRELS DAILY FOR WEEK ENDED Sept. 3	Aug. 27
KANSAS—				
Burrton-Haven	.....	.....	9,275	9,350
Russell County	.....	.....	24,075	26,300
Silica	.....	.....	10,900	10,900
Others	.....	.....	116,950	118,825
Total Kansas	169,300	165,500	161,200	165,375
NEW MEXICO	112,300	107,000	105,900	107,100
MICHIGAN	60,000	.....	51,300	49,200
ARKANSAS	53,900	.....	56,925	56,200
MOUNTAIN STATES—				
Wyoming	62,200	.....	61,600	62,800
Montana	13,900	.....	12,900	13,100
Colorado	5,500	.....	3,450	3,700
Total Mountain States	81,600	.....	77,950	79,600
EASTERN STATES—				
Pennsylvania Grade	.....	.....	74,900	70,200
Southern Illinois (New Pools)	.....	.....	48,100	47,800
Illinois-Indiana (Old Pools)	.....	.....	13,450	11,600
Others, Eastern	.....	.....	22,150	21,000
Total Eastern States	148,100	.....	158,600	150,600
Total United States	3,438,100	.....	3,198,775	3,376,425

* Recommendation of Central Committee of California Oil Producers.
† Daily average, considering Sunday shut-down.
‡ Considering Saturday shut-down, effective September 3, as well as Sunday shut-down.

WEEK'S DRILLING HIGHLIGHTS

Oklahoma

Flowing 172 barrels in 14 hours from second Wilcox at 6768 feet, an Oklahoma County wildcat indicates a new field between Britton and Oklahoma City fields. South Braman pool in Kay County recorded its second producer, and the fifth Oolitic lime producer was chalked up for Fox-Milroy.

South Texas

The Vicksburg trend paid off again with conversion of Kelsey Bass prospect in Jim Hogg County into a 4730-foot Frio sand field. Alice field got a new sand at 5000 feet. Shallow Pennsylvanian limestone showed oil to put Sisterdale prospect in Kendall County on the oil map. A 2600-foot well is affording a mile extension for Barbacoas field, Starr County. Bee County got a new high gravity oil pool when a test on Tulsita prospect was completed on the pump. In Laredo district McMullen County added a 1200-foot Mirando sand pool, and Hoffman and Rancho Solo pools were extended. Jackson County chalked up a Marginulina sand pool, and La Rosa field in Refugio County will have a third Frio sand, according to showings in an outpost wildcat.

Kansas

Two miles east of Sittner pool a wildcat was showing for Arbuckle lime production. Two other new pools loom. One is a Stalnaker sand proposition 2½ miles north of Oxford in Sumner County; the other is an 876-foot project 3 miles from settled production in Montgomery County.

Comparison of Permits Granted for New Wells

STATE	Week Ending Sept. 3	Total this Mo.	Total this Year	Total this Date Last Year	1937 Year Total
Arkansas	3	3	168	164	240
California	34	34	842	1,084	1,584
Louisiana	20	20	904	858	1,227
Kansas	36	36	1,078	1,882	2,663
Michigan	33	33	569	677	958
Oklahoma	35	35	1,386	2,003	2,711
Texas	181	181	9,014	12,404	17,238
Total	342	342	13,961	19,072	26,621

Arkansas

A well checking low on anhydrite appeared to establish east limits of Permian lime production in Magnolia field. Salt water is proving troublesome in tests near the recent discovery well at Village.

Wyoming

Extension of Osage field 2 miles west by a 175-barrel well completed at 1956 feet is expected to revive drilling in the shallow district of Weston County. The second well on Cole Creek structure is losing returns in Mesa Verde shales.

Michigan

Freeman Township pool of Clare County was extended 1½ miles north by a 30-barrel well. A wildcat 2 miles southeast of the Freeman-Redding discovery well was running 8 feet higher than the latter.

New Mexico

Normal production in two outposts of the east extension sector of Vacuum assures continued drilling there, but a wildcat 2 miles southeast of the field is not checking favorably. A well on Monument's east flank flowed 20 barrels the first hour.

Illinois

Flowing 500 barrels daily, a Wayne County wildcat opened a new field 13 miles from production. A 2-mile extension northeast for Beecher City field, Fayette County, appears probable, a test having logged 32 feet of Stein saturation. Lake Centralia field of Marion County got a ¾-mile southeast extension. A Big Mound Township well in Wayne County established the initial production record for Illinois when it did 4000 barrels from McClosky.

West Texas

Two miles south of Wilson pool a Ward County wildcat encountered two gas flows around 5100 feet. Pardue pool of Haskell County was extended ½ mile south by a well flowing 75 barrels from Adams Branch lime at 2811 feet.

North Texas

Oil saturated sandy lime was found in a southeastern Archer County wildcat at 5291 feet. The lower Strawn horizon in Panther pool, northeastern Archer County, contributed the fourth producer.

Texas Panhandle

The largest completion of the year was recorded when a Gray County field well initialed 2700 barrels of oil in 17 hours from granite wash at 2695-2770 feet.

Summary of Wells Completed in the United States Week Ending September 3, 1938

	Completions	Oil Wells	Gas Wells	Failures	Initial Production	Total, 1938	Total this Date, 1937
Alabama	.....	.....	.....	.....	.....	2	1
Arkansas	3	3	.....	.....	1,020	154	77
California	32	26	1	5	12,825	869	1,029
Colorado	.....	.....	.....	.....	.....	5	8
Florida	.....	.....	.....	.....	.....	.....	1
Georgia	.....	.....	.....	.....	.....	1	.....
Illinois	34	26	.....	8	7,096	924	126
Indiana	.....	.....	.....	.....	.....	79	84
Kansas	34	30	.....	4	30,600	1,163	1,788
Kentucky	17	9	2	6	165	516	249
Louisiana	28	11	5	12	3,563	752	638
Michigan	24	11	.....	13	1,655	595	631
Mississippi	.....	.....	.....	.....	.....	11	10
Montana	3	2	1	.....	165	47	133
Nebraska	.....	.....	.....	.....	.....	1	.....
New Mexico	8	7	.....	1	5,400	361	484
New York	2	.....	1	1	.....	*467	*856
Ohio	21	7	6	8	295	643	1,007
Oklahoma	20	9	1	10	2,562	1,469	2,154
Pennsylvania	*34	32	1	1	33	*1,476	*2,053
Tennessee	.....	.....	.....	.....	.....	2	.....
Texas	227	169	9	49	212,789	8,831	10,339
Utah	.....	.....	.....	.....	.....	2	.....
West Virginia	16	3	12	1	19	473	614
Wyoming	.....	.....	.....	.....	.....	74	72
Total this week	503	345	39	119	278,187	18,917	22,354
Total last week	486	358	22	106	255,305	.....	.....
Total this year	18,917	13,112	1,350	4,455	12,725,253	.....	.....

* Includes water-intake and pressure wells.

Oklahoma Fields

Ready to complete wildcat north of Oklahoma City.

Oolitic lime furnishing fifth Fox-Milroy producer.

Second producer in South Braman due for completion.

Tulsa.—With successful shut-off of water by plugging back, Olson Oil Company was ready to complete Vanek 1, SE SW NE 4-12n-3w, Oklahoma County, wildcat south of Britton and north of the Oklahoma City field. It flowed 175 barrels of clean oil in 14 hours September 1 from Second Wilcox sand topped at 6721 feet. The plugged back depth is 6768 feet. Previous to plugging back the well made 250 barrels in 24 hours, with 6 percent water from the total depth 6776 feet.

Holders of leases surrounding the discovery well south of Braman, Kay County, gave evidence of extending development by filing petition with the Oklahoma Corporation seeking to space wells on 20-acre tracts. The pool has one well producing, one ready to complete and a third starting.

In the Ramsey field, Payne County, the eleventh and twelfth wells were completed and the thirteenth was in the sand ready to wash in. This completes the current drilling campaign on the community block.

Oolitic Lime Pays Off

A fifth producer for the Oolitic lime area of the Fox-Milroy play in Stephens County seemed certain at the end of the week when Gulf Oil Corporation got a flow of 843 barrels at 8175 feet from McClure 2, C SE NE 28-2s-3w, after treatment with 5000 gallons of acid. An oil load of 315 barrels was used. The oil flow was accompanied by 237 barrels of water, believed to be part of the drilling fluid. The well was open 14 hours and shut in to erect tankage.

As a whole the week resulted in scant additions to reserves for Oklahoma, as the nine oil wells out of the 20 completions registered only 2562 barrels initial output. Major part of this was one well of 1800 barrels initial in the old Cement pool, Caddo County. There were 10 dry holes, most of them in the Greater Seminole area, where both inside locations and edge wells are being drilled in the older fields.

The Seminole area, however, continues to draw the bulk of the locations staked in Oklahoma. These numbered 35 last week, nine being in Pottawatomie County and five in Seminole County. This part of Greater Seminole, especially the St. Louis field, is drawing most of the activity.

Second South Braman Well

A second completion for the new South Braman field, Kay County, is due shortly as casing has been set by Tide Water Associated Oil Company in School Land 1, SE SW SW 16-28n-1w, west offset to the discovery well of Ohio Oil Company and Helmerich & Payne. After coring first Wilcox sand to 3632 feet, 7-inch casing was landed at 3600 feet. At the same time Ohio Oil Company and Helmerich & Payne began rigging up Wilbur 1, NW NE NW 21-2n-1w, a south offset to the discovery well.

Holders of leases around this development, the concerns above, Deep Rock Oil Corporation, E. J. Shaffer and L. H. Wentz have filed petition with the Oklahoma Corporation Commission seeking to establish a 20-acre drilling pattern for the pool, as well as establish a casing program, method of taking potential and classification of the pool in Class D, which would allow voluntary proration by producers with 50 barrels daily the minimum output per well.

Hearing on the petition will be held September 7. Holders of the surrounding acreage are seeking to establish a drilling pattern similar to that approved in the Noble pool, Cleveland County. Under its provisions each 40 acres would be divided by a diagonal to form two triangles and wells would be drilled in the center of such triangles.

Casing Program

The casing program recommended provides for a 10-inch surface string to penetrate all surface water sands and in no instance to be shorter than 100 feet, cemented to the surface; that all oil strings be set in the top of the second Wilcox sand and not exceed 6⅝-inches in diameter and that the oil strings be cemented to within 2000 feet of the surface; that all wells producing from the Wilcox zone be tubed to at least the bottom of the oil string and that tubing not exceed 2-inches in diameter.

The potential method sought provides that flow be through 2-inch tubing for six hours with the output of the last four hours multiplied by six to determine initial output.

These regulations are sought for 1440 acres, all of Section 16, the east half of Section 17, the northeast quarter of Section 20 and the north half of Section 21, all in Township 28 north, range 1 west.

The discovery well of the pool, School Land 1, C SW SE SW 16-28n-1w, was completed July 8 for 1000 barrels with 2,000,000 cubic feet of gas from the Wilcox zone, top 3530, total depth 3645. As a discovery well it is now taking its discovery right of 15,000 barrels.

In Garfield County Indian Territory Illuminating Oil Company has set 9-inch casing at 6118 feet in Hunton lime in Kichen 1, C SE SE 17-22n-5w. Farther northwest in this county Champlin Refining Company is below 6500 feet in Boehm 1, SWc NE 4-24n-8w.

Fox-Milroy Failure

Another failure in the Oolitic lime of the Fox-Milroy area came when Carter Oil Company plugged back Feagin 1, C NW SW 36-2s-3w, Stephens County, to test the Hunton lime around 5400 feet. The Oolitic lime section was treated with acid and high pressure gas was introduced at 8040 feet, but without success.

Gulf Oil Corporation and Carter Oil Company also failed to get production on the first test of the Oolitic lime in Lester 1, C NW NW 35-2s-3w, Stephens County, total depth 8087 feet. With 5000 gallons of acid and an oil load of 335 barrels in the hole, it was opened 1 hour and 13 minutes. Bottom of the hole will be shot and another acid application used.

A third deep well in this area is testing the Oolitic lime of Arbuckle age. This is Gulf Oil Corporation's McClure 2, C SE NE 28-2s-3w, Stephens County. The operator treated late in the week with 5000 gallons of acid at 8175 feet with bottom at 8187 feet. Following acid the well flowed 843 barrels of oil plus 237 barrels of spent acid and salt water in 14 hours. Production was accompanied by an estimated 1,300,000 cubic feet of gas. This well makes the fifth producer in the deeper zone.

Deep Test for Chickasha

Work has been started on the deep test in the old Chickasha gas field, a community block which will be operated by Carter Oil Company, which is riggnig up at Smith 1, C SE SW 26-5n-8w. This test will go to 10,000 feet unless production is found at a higher level. The 18 concerns holding the 2200 acre block have rights below 3500 feet.

With two completions for the week and a third well in the sand, the Ramsey field, Payne County, was ready to move into the status of no activity its second time. Mid-Continent Petroleum Corporation, operator of the community block, completed Columbia 4, SW NW SW 18-18n-2e, for a potential of 13,416 barrels from the Wilcox sand. Late in the week Ramsey 6, NE SW NW 18-18n-2e, made 623 barrels in one hour and 638 barrels a second hour from Wilcox sand between 4727 and 4763 feet to indicate a potential of around 15,000 barrels. Ramsey 5, SW NW NW 18-18n-

OKLAHOMA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Caddo—		
Magnolia, Pau-Kune 8, nec 10-5n-9w	1800	3349
Palmer Oil Corp., Ulrey 1, se ne ne 34-6n-10w	111	3435
Carter—		
Sun, Mullen "A" 19, swc ne 4-4s-3w	5	1015
Comanche—		
Wichita Oil, Inc., Palmer 7, sw se sw nw 28-2n-10w	7	4581
Creek—		
Greis, Hughes 1, se ne se 20-18n-10e	*	3060
Gordon, Davis 1, nwc 35-14n-10e	*	3360
Jefferson—		
Schwartz et al, Penniston 2, nwc se 17-7s-5w	*	818
Oklahoma—		
Fain Drlg. Co., Little 1, sec ne 28-11n-3w	*	6985
Clum et al, Gillemend 1, se se sw nw 15-12n-3w	45	6515
Osage—		
I. T. I. O., 457, ne ne nw sw 27-24n-11e (otd 1731 ft)	¶2¼	3029
Pontotoc—		
Hager & Sledge, Haggard 1A, c s½ n½ nw ne nw 4-4n-5e	8	2433
Himbree, Brown 1, swc ne 27-5n-6e	*	1842
Pottawatomie—		
Atlantic, McCurry 1, nw ne sw 6-6n-4e	250	4209
Elbar, Douglass 1, ne se nw 10-7n-4e	*	3558
Hall, Clour 1A, se nw se 11-7n-4e	*	3266
Kirshner et al, Risenhoover 1A, nwc ne 14-7n-4e	*	3188
Magnolia, Davis 2, ne nw ne 24-7n-4e (pb 3600 ft)	*	4235
Alma Oil Co., Bourbonnois 1A, swc ne 28-7n-5e (pb 4165)	*	4280
Hall & Briscoe, Smith 1, se ne ne 32-7n-5e	306	4047
Stephens—		
Sikes, Mulkey 1A, c ne¼ 16-1s-8w (otd 2047 ft)	30	2122

*Failures; †Junked; ¶Million cu. ft. gas

You wouldn't repair your own watch . . .

No, you wouldn't attempt to repair your own watch, because the results may be unsuccessful and costly.

On the contrary, you would go to a reliable watchmaker—a specialist in watch repairing—who would do the job satisfactorily, and at a reasonable cost.

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PETROLEUM ELECTRIC POWER CLUB

2e, found the Wilcox said lower than the other wells, top 4760, total depth 4789½ feet. It is being tubed.

Final completion of these wells will give the field 13 producing wells, all on the community block.

Between the Ramsey field and the Orland pool, Denver Producing & Refining Company was ready to abandon Horton 1, NE NW NE 22-19n-1e. It was drilled and cored to 5008 feet with only hard unsaturated sand recoveries.

In the Greater Seminole area J. F. Smith was pumping 40 barrels an hour from the discovery well, Edgeman 1, SEc 17-7n-6e, Seminole County, from Wilcox sand at 4380 feet. Three offsets are rigging up.

Drilling has been started on the Pottawatomie wildcat of G. M. Piggot, Good 1, C E½ NW SW 4-11n-5e, between the Shawnee and Wilzetta pools. Summitt Drilling Company is rigging up.

A quarter of a mile southeast of the Okfuskee County Cromwell sand discovery well, Lehmer 1, C NE NE 26-11n-8e, A. M. Ballard has staked location for Replogle 1, NE SE NE 26-11n-8e. The discovery well is pumping from between 3467 and 3485 feet, making a small amount of water.

The Coal County wildcat of Carter Oil Company, Mote 1, C E½ SW NW 9-2n-9e, Centrahoma area, is drilling below 6400 feet in the Hunton lime topped 6191 feet.

KANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Barton—		
Martin & Hearing, Kultsen "B" 1, nec se 17-16s-12w	655	3349
Phillips, McClannahan 4, c s½ sw nw se 7-16s-13w	3004	3346
Shell Hoffman "A" 5, nwc sw 7-16s-13w	2719	3362
Butler—		
Ramsey, Fee 1, se ne nw sw 8-24s-5e	*	2531
Wixon, Dohren 5, se sw ne 11-25s-3e	90	2698
Rex & Morris, Guenther 1, nw ne ne 29-26s-7e	50	2201
Adair & Morton, Brandt 5, ne se se 15-28s-7e (pb 2697 ft)	25	2700
Cowley—		
Shawver, Fee 7, se nw se 3-30s-4e	*	3329
Trees Oil Co., Lewis 4, nw ne ne 28-31s-4e (otd 2434 ft)	2322	3342
Wakefield, Wilson 4, nw ne nw 4-32s-3e (pb 3251 ft)	2391	3256
Ellis—		
Magnolia, Johansen 16, se sw ne 22-11s-17w	2306	3399
Cities Service, Rumsey 2, ne nw sw 23-11s-17w	2131	3373
Shell, Rumsey 7, ne sw nw 23-11s-17w	2549	3358
Republic Natural Gas Co., Joy 1, nec 14-12s-18w	929	3640
Twin Drlg. Co., Goetz 3, 100 ft s of ne nw se 3-14s-17w	1573	3531
Ellsworth—		
Cities Service et al, Mollhgen "C" 1, c w½ se 29-17s-9w	1433	3239
Greenwood—		
Basinger & Herrington, Carter 1, c n½ s½ sw nw sw 32-25s-11e	6	1304
Harvey—		
Hippel et al, Martindell 1, c s½ n½ se 18-23s-3w	1514	3368
Reno—		
Colorado Syndicate, Sabine 1, nec nw 13-23s-4w	50	3411
Rice—		
Shell, Zajic 5, nw sw ne 13-18s-8w	2520	3194
Atlantic, Habiger 1, nec 8-18s-10w	570	3270
Stapleton et al, Grove 3, sw se nw 29-19s-9w	1705	3223
Rooks—		
Hall & Billings, Kruse 1, sec 3-10s-16w (pb 3121 ft)	169	3212
Russell—		
Hall, Miller 32, nec se 30-14s-13w (pb 2924 ft)	1013	2965
Southern Inc., Hinderleter 1, sw nw nw 33-15s-13w	129	3351
Stafford—		
Cities Service, Schilling 2, swc 26-21s-13w	*	3733
Sumner—		
Wentworth et al, Latta 1, ne se ne 8-30s-2w	95	3089
Woodson—		
Sinclair Prairie, Headley "C" 8, sw sw nw sw 29-23s-14e	8	1661
Young & Sullivan, Eckhoff 2, c w½ ne nw 35-23s-14e	8	1655
Sheedy et al, Akins 10, ne se se 19-25s-14e	20	1470
Sheedy, Enloe 5, c n½ nw se 28-25s-14e	30	1448
Lee 8, swc ne 28-25s-14e	30	1458
Tipton 9, ne sw nw 28-25s-14e	15	1428
Driller O&G, Steinforth 1, swc ne 13-26s-14e	*	1427

*Failures; †Junked; ¶Million cu. ft. gas

Kansas Field Developments

Drilling Being confined largely to proven fields.

Rowley's wildcat opens new Stafford County pool.

Wolf discovery flows 502 barrels on potential test.

Wichita.—Results of drilling in Kansas fields last week were an accurate reflection of the trend taken early this year of striving to confine locations to territory either proven or so favorably considered geologically that dry holes will be few. There were 34 completions, 30 of which were producing oil wells which had better than 1000 barrels for an average initial output, flush oil totaling 30,600 barrels. Four dry holes completed the list.

Meanwhile another 36 locations were staked and the areas which drew them indicate similar success in completion. Barton and Russell counties, among the leading producers of Western Kansas, had 15 of these locations, while Greenwood and Cowley counties, leaders in older producing fields, drew 9 more of the locations.

The Stafford County wildcat of H. L. Rowley, Sittner 1, SE SE NE 35-21-12w, which was showing for production last week, was completed as a pool opener.

In Sumner County a showing in the top of the Stalnaker sand indicated another pool north of Oxford and west of Churchill. Pipe is being set to drill deeper and test.

The only other hopeful well was in the old eastern shallow belt, where the Bartlesville sand yielded a hole full of oil after being shot.

To Test Arbuckle

After testing a second showing in the Lansing lime at 3822 feet, Atlantic Refining Company will drill to the Arbuckle lime in Wise 1, NWc 13-24-14w, west of the St. John pool, Stafford County. The showing at this depth was the second in the Lansing section. Rotary rig is being moved in, as the rig has been standardized and pipe run after the first showing at 3729 feet.

Rowley's Sittner 1 made potential on the pump of 1230 barrels from the Arbuckle lime between 3565 and 3575 feet. The well is 2 miles east of the Sittner pool proper and a half mile northeast of the South Sittner pool. It was drilled on acreage blocked by the Indian Territory Illuminating Oil Company.

Completion of the semi-wildcat of C. E. Ash and associates, Wolf 1, SE SW SE 36-19-12w, Barton County, resulted in naming the pool Wolf. It flowed 502 barrels on potential test from the Arbuckle lime between 3346 and 3373 feet. The well is a mile and three quarters northwest of the West Ellinwood field.

Two offset wells are starting at the Sittner well and additional drilling is scheduled for the Wolf field.

Largest Potential

A new pool designation, East Letsch, came with completion of another semi-wildcat in Russell County where the Mid-Continent Petroleum Corporation completed Rogg 1, NW NE 34-14-13w, for 1784 barrels from the Lansing lime between 2867 and 2911 feet. It was acid treated three times. Along with five other wells, previously drilled, the area was considered separate from the Hall and Letsch pools. The potential was the largest for the area.

Indications favoring opening another Stalnaker sand pool in Sumner County came with a showing after drilling one foot in the formation. Hapenny and associates' Evers 1, SE NE 27-31-2e, topped the formation at 2019 feet. Preparations were made to set casing for drilling in and testing. This well is a mile west of the Churchill field and 2½ miles north of the Oxford field, both producers from the Stalnaker sand. It is on a block of 1800 acres.

After a series of perforations between 3500 and 3580 feet, Bunte Brothers had small oil recovery with water in a test three miles northwest of the Cunningham field, Kingman County. This test, Shepard 1, SEc 10-27-10w, drilled to the Arbuckle lime, 4086 feet. After testing it began plugging back and perforating, with reports to the effect that a sandy section above the Lansing lime was responsible for the small oil output.

Over in Eastern Kansas a showing in the shallow Bartlesville sand belt indicated a possible new pool for Montgomery County. Wilbur Neely of Wichita found top of the Bartlesville sand at 862 feet and drilled to 876 feet in Starkey 1, NE NW NW 22-21n-6e. After a shot the hole filled with oil which could not be lowered by bailing. It is three miles from settled production.

Hardin hearing to consider field rules

The hearing on the Hardin Field set for September 7 has been expanded by the railroad commission to take in possible changes in field rules.

The hearing originally was called to determine whether certain designated wells are within the field.

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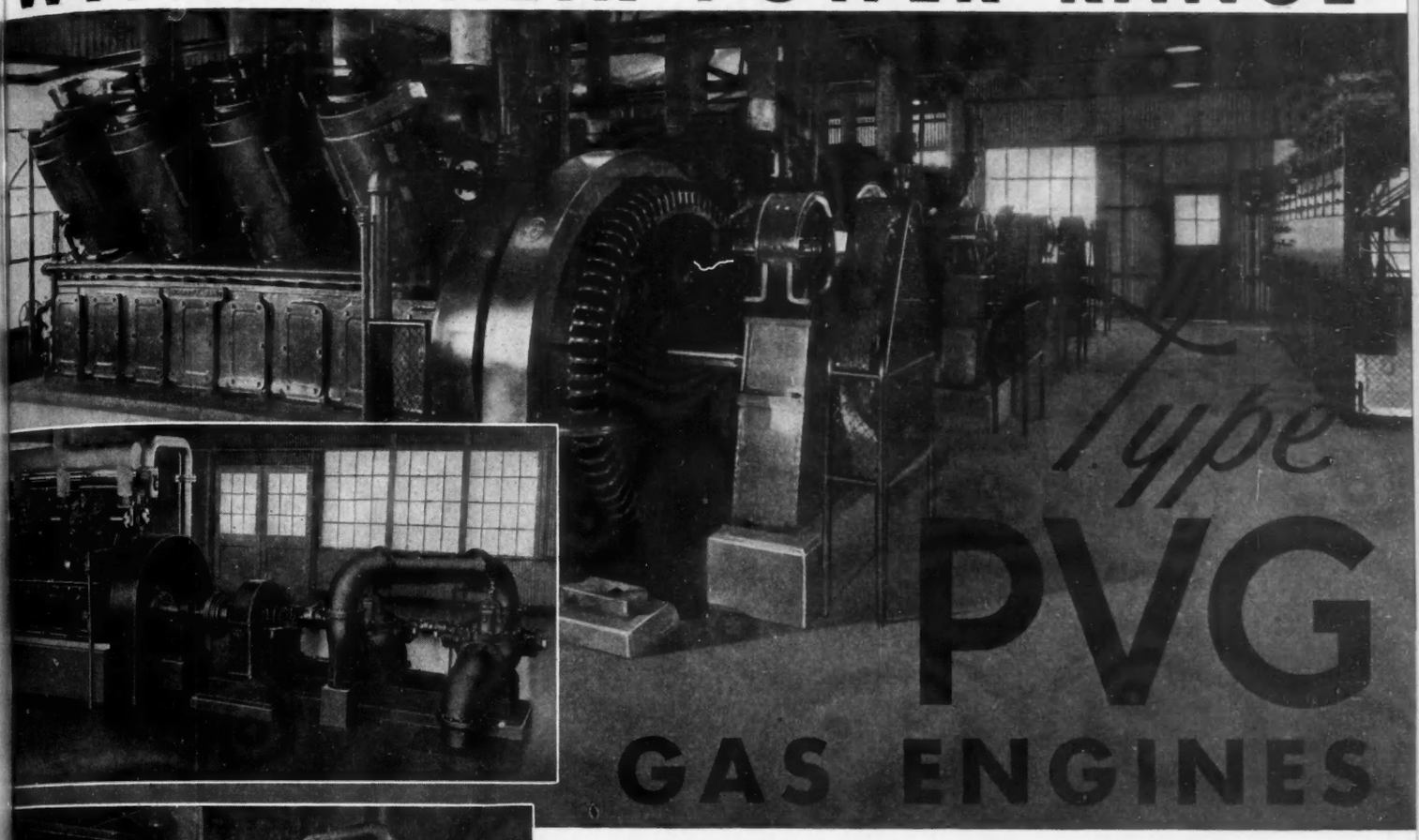
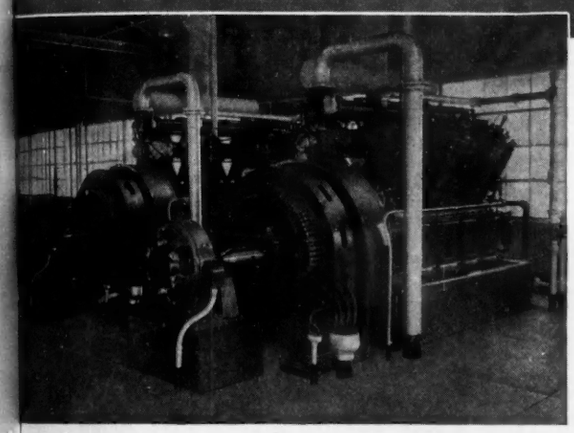
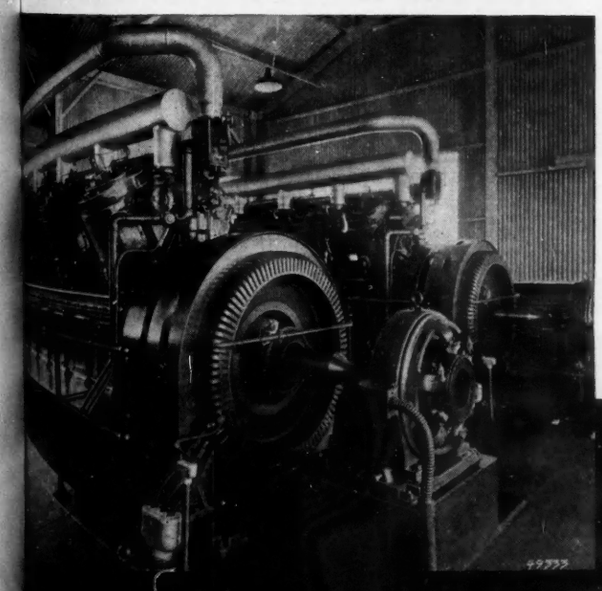


Type **PVG**

GAS ENGINES





Other I-R equipment for oil field service includes the many sizes and types of both stationary and portable compressors, Diesel engines, pipe line pumps, rock drills, etc.

667-7

The quick acceptance of the new PVG heavy-duty V-type gas engine by the petroleum industry is proof of the soundness of its design and construction. Patterned after the highly successful XVG gas-engine-driven compressor, the PVG gas engine is fast establishing itself in a similar position of leadership.

The PVG is a highly economical and dependable driver for both reciprocating and centrifugal machinery, such as pumps, blowers, generators and other equipment. Its use should be considered wherever gas is available as fuel. Governors can be furnished to give any degree of speed control.

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North Texas Developments

Deep lime oil promised southeast Archer County.
Fourth lower Strawn well for Panther.

Wichita Falls, Texas.—The development of oil production from the deep lime horizon in southeastern Archer County was considered promising for Panhandle Refining Company et al's Prideaux 1, A. Rohus Survey A-1126, which was awaiting production test late last week after plugging back from 4755 feet to 3275 feet. An electrical formation survey taken before the cementing of 7-inch pipe at 3253 feet confirmed the presence of oil saturated sandy-lime at 3272-91 feet, which was passed up to fulfill depth contract. Rancho Oil Company and Fresno Oil Company each hold one-third interest in the test and supporting block of 1500 acres of deep mineral rights.

Completion of a fourth oil producer from the lower Strawn horizon in the Panther field, northeastern Archer County, appeared probable when Helmerich & Payne Inc.'s L. F. Wilson 3, SEc Section 25, logged oil saturated sand at 4365-70 feet. Seven-inch pipe was cemented at 4364 feet. It is a northwest offset to a small pumper completed at 4403 feet, or 51 feet lower sub-sea than the new prospect. The area has 3 completed wells in this zone; 6 in the 3800-3900-foot upper Strawn; and 1 in the Ellenberger at 5116 feet. Due to the absence of flush production, the Panther field is not to become an active drilling center.

Continental Oil Company and Petroleum Producers Company's State Asylum 1, southeastern Wichita County wildcat, failed to encounter any appreciable rise in the oil column after deepening to the Ellenberger lime at 5350-5418 feet. The hole was plugged back with gravel to 5375 feet for a stringshot of 100 quarts of nitro at 5129-5375 feet, resulting in hole full of oil while cleaning out. It is the deepest producer in North Texas, and the bulk of the oil is from saturated Bend lime topped at 5097 feet.

K-M-A Drilling Slumps

K-M-A is losing ground as the outstanding drilling center. Operators have no alternative but to defer their scheduled development programs until a reasonable market is available for their high gravity oil from the Strawn horizon. The field gained 11 new operations the past week, or the same as the previous week, and total operations declined to 143. Total of 46 tests have progressed to the final casing point, else are in process of completion, and rotary rigs are in service on 25 tests drilling between casing points. Derricks and rigs account for 15 listings, while surface pipe has been landed on 18 additional well sites.

Property sales and lease trades have been negligible at K-M-A in recent weeks as result of the low allowable per well and the failure of the market demand for the high gravity oil to expand with the volume of new completions. Operators that assembled large acreage within the producing area are inclined to make farmouts. A drilling obligation has been assumed by Max Cherry et al in acquiring the D. E. Hooks 190-acre lease. W. S. Kennard Survey A-171, from W. B. Omohundro et al. Surface pipe has been set on the first test, which offsets production on the east side of the field.

Plugging orders were issued by Magnolia Petroleum Company for its Hugh Reilly 143, second recent deep lime test for the company in the old Burkburnett shallow oil district, after testing dry in the Ellenberger at 2440-2510 feet.

W. H. Gant et al's Bryant Edwards 1, Clay County wildcat situated 6 miles east of Henrietta, is scheduled to be plugged back again for a test in the Bend and Marble Falls after failing to respond to 60-quart nitro shot at 6010-57 feet and treatment with 1000 gallons of acid at this level. The hole was plugged back from Ellenberger at 6364 feet to 6069 feet.

NORTH TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Archer County—		
Harmel et al, Fee 1, sec 2491....	*	1500
Shappell Oil Co., Bell 9, sec 27...	142	1000
Underwood Dri. Co., Campbell 24-B, sec 1378	20	976
Campbell 25-B, sec 1378	45	1017
Campbell 26-B, sec 1378	10	1017
Clay County—		
Metzner & Burns, Thornberry 8-A, blk 6	*	1230
Wood Pet. & Roy. Co., Kempner 1, blk 44	*	2380
Cooke County—		
Mudge Oil Co., Clayton 5.....	15	1022
Temples et al, Mount 1.....	*	1820
Trumter Oil Co., Reiter 2.....	*	1784
Jack County—		
Champlin & Bass, Gahagan 1.....	287	3200
Dearing et al, Mitchell 1-B.....	87	3160
Hamilton Pet. Co., Rhodes 1-B...	25	2389
Mar-Tex Oil Co., Kuykendall 4-B..	320	3135
McKee & Mullens, Wilson 2.....	*	421
Wilson 3	*	418
J. B. Sneed & Co., Bryson Bank 1	†	2650
Sullivan Oil Co., Swasey 4.....	15	386
Montague County—		
Continental & Seitz-Comegys & Seitz, Hott 16	84	1627
J. W. Sorrell et al, Walthall 1....	*	3781
Throckmorton County—		
Bearman Oil Co. et al, Tuton 1...	3	739
Helmerich & Payne-Marland-Drake, Dickey Bros. 1, sec 2226	*	4085
Dickey Bros. 1-A, sec 2226.....	*	598
White-Duncan & Humble, Reynolds L&C Co. 1, sec 83	*	3102
Wichita County (K-M-A)—		
Deep Oil Dev. Co., Munger 19-A, blk 31	640	3882
Pace 4	624	3915
Egger et al, Preston 2, sec 20.....	888	3864
Greer et al, Mitchell-Gulf 3.....	640	3864
Haberle & Thornton, First Nat'l Co. 1-B, blk 26	560	3858
First Nat'l Co. 2-B, blk 26.....	400	3880
W. H. Hammon & Hanlon-Buchanan, Fassett-Tuttle 12, sec 2.....	768	4002
Hoppes et al, Seay 4-B 1280		3870
King Oil Co., Wigley 3-A.....	608	3878
McCutchin et al, Denny 3.....	700	3917
McDonald et al, Mitchell 2, lot 17	680	3932
Omohundro et al, Hooks 12.....	696	3841
Ray et al, Waggoner Bros. 2-B, sec 8	712	3803
Vierson et al, Kempner 3-B, blk 18	660	3871
Shell, R. L. Kempner 2, blk 17....	600	3879
Wichita County—		
Bolin & Jim Whittington, Waggoner Bros. 8-A, sec 21	*	923
Dorian & Mitchell Oil Co., Mitchell 6, lot 7	*	460
Douglas Prod. Co., Douglas 22-E, sec 11	*	1070
Gutzler et al, J. Jenne 4, blk 1...	*	347
Magnolia, Hugh Reilly 143	*	2510
Wilbarger County—		
Phillips, Waggoner-King 2, sec 63	125	2898
Young County—		
Bridwell Oil Co., Williams 3, blk 26	50	655
Hardy Oil Co., Benson 15, sec 1397	*	950
Honest Oil Co., Scott 1, sec 335...	*	830
Knox et al, Taylor 5-A, sec 3407..	657	3934
Knox et al, Copeland 1.....	*	4202
Pemeta Oil Co., Swain 9, sec 1465	7	708
Sams & Watson, Cullers 6.....	10	650

*Failures; †Junked; ¶Million cu. ft. gas

Compact commission meets September 29 at Tulsa

The next quarterly meeting of the Interstate Oil Compact Commission will be held in Tulsa, September 29, the last day of the conference of state governors, who will be in Oklahoma City, then Tulsa and finally at the Woolaroc lodge of Frank Phillips in Osage County.

The day previous to the session there will be a meeting of the committee named at the Colorado Springs meeting to draft a resolution for continuance of the federal statute under which the compact exists. E. R. Sloan of the Kansas State Corporation Commission, is chairman of this committee.

Oil union moves its headquarters to Ft. Worth

Headquarters of the International Oil Workers' Union, CIO affiliate, have been transferred from Washington, D. C., to the Majestic building, Fort Worth. The move was authorized at the ninth annual convention held at Houston last June.

Panhandle gets largest oil well of year

Pampa, Texas.—A natural flow of 2700 barrels of oil in 17 hours was developed by The Texas Company's M. B. Davis 15, N½ NW¼ Section 1, Block 1, ACH&B Survey, Lefors sector of the Gray County field, from granite wash at 2695-2770 feet. It is the largest completion in the Texas Panhandle this year. The prolific flow was partially attributed to the presence of 12,000,000 feet of gas at 2675-90 feet. It has an elevation of 2792 feet.

Sinclair Prairie Oil Company and Parcomis Oil Company's W. H. Bush 1, C SW SE BS&F Section 23, Block 6, projected 8000-foot Ordovician test for the Cliffside structure, Potter County, was drilling lime at 3496 feet. Nominal gas shows in the regular lime horizon were passed up without a test.

TEXAS PANHANDLE Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Carson County—		
Hagy, Harrington & Marsh, McConnell 8	¶8.4	2938
Warren 1	¶21.8	2931
Gray County—		
Gering Oil Co., Webb 1.....	662	2640
Gulf, Faulkner 14-A	105	3000
Ochiltree et al, Saunders 2.....	672	3243
Phillips, McKinney 3	357	3277
Sanders 2	461	3083
Texas Co., Frashier 5.....	307	3318
Hutchinson County—		
A. D. Devore & Whittaker, Hodges 3	705	3074
Huber Pet. Co., Herring 7.....¶12.9		2960
Phillips, Lone Star 2.....	271	3168
Smith Bros. Ref. Co., Herring 3..	470	3240

*Failures; †Junked; ¶Million cu. ft. gas

MERLA OILFIELD EQUIPMENT

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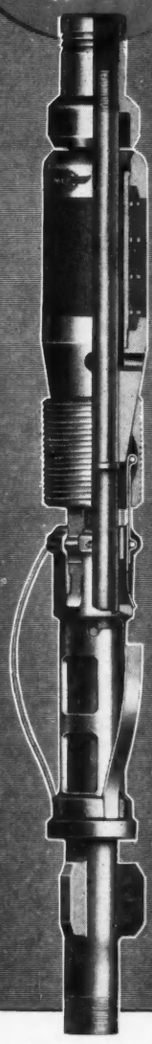
MERLA VALVELESS HOOK WALL PACKER Type "B"

The Merla Type "B" Hook Wall Packer was designed to meet the demands of the operator who requires a packer of the highest quality yet reasonable in price. All parts of this packer are designed and built to meet present-day operating conditions. Since this packer does not carry a by-pass valve, its sturdy construction, together with its perfect sealing sleeve, makes it ideal for gas lift work, also for those conditions requiring a valveless packer.

Complete details in catalog

MERLA VALVE HOOK WALL PACKER Type "A"



Especially designed to meet present deep well conditions and also for use in gas lift work. Very often when the usual packers are pulled, the slips or friction springs are either sheared or broken off. In the Merla Packer every effort has been made to eliminate this defect by designing a heavier slip, and hinging it to the cage by means of a double spring rein. This packer also carries a double valve arrangement which assures a perfect seal between the tubing and packer.

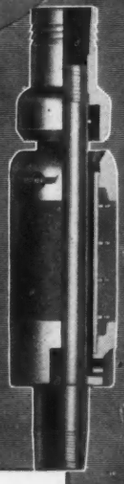
Complete details in catalog

MERLA INSERT PUMP ANCHOR

With the Anchor it is not necessary to pull tubing when installing the pump, a gin pole being sufficient to run the rods with the pump and anchor attached. Then with a turn of the rods the anchor is set and the well is ready to pump. The Merla Insert Pump Anchor is run in with the pump and rods and likewise withdrawn with them. Pump can be set at different levels as varying well conditions often require without usual pulling of tubing.

Complete details in catalog

MERLA LINER PACKER Type "A"



This packer can be used in wells equipped with liners upon which to set the packer at a cost much less than the price paid for hook wall packers. Carries a double valve arrangement which is not found in other bleeder type packers. If the first valve is fouled there is still a sleeve valve to pack-off the leakage from the first valve.

Complete details in catalog

MERLA STANDING VALVE Type "B"

Especially designed to work in conjunction with gas lift equipment. Oversize stainless steel ball and seats. Internal top thread and external bottom thread make valve the strongest point in tubing string.

Complete details in catalog

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West Texas Fields

Two Yoakum County fields will get extension tests.

Wildcat tests authorized in Andrews and Hockley counties.

Midland, Texas. — One-mile southwest extension for the Bennett field, Yoakum County, is to be sought by Aloco Oil Company, Dallas, in acquiring lease on 480 acres, embracing all Section 741, except the northeast quarter, from the Santa Fe Railroad. The consideration involves an overriding royalty, and continuous development, if production warrants. In the event the entire tract is productive, a total of 24 wells will be drilled, as 20-acre spacing is used in the field proper. Recent completions on the southwest edge of the field recorded high structural position, and major extensions along this trend are anticipated. The Aloco Oil Company was recently formed by Clint W. Murchison, Toddie Lee Wynne and associates.

Expansion of the Yoakum County sector of the Wasson field 1¼ miles to the east is to be sought by Honolulu Oil Corporation in starting operations on R. M. Kendrick 1-M, SW NE SW Section 825. No failures have been drilled along the east flank of this large structure. Continental Oil Company's Wasson 1-52, NEc S½ Section 52, an inside location for the Gaines County portion of the field, flowed 1006 barrels natural on initial gauge from lime at 4910-85 feet through ¾-inch choke. Gas volume was rated at 915,000 feet daily.

The Texas Company has authorized a wildcat for Andrews County and a semi-wildcat for the Slaughter area, Hockley County. This company's University 1-H, NW NE SW, Section 4, Block 14, is ¾ mile southwest of Shafter Lake, Andrews County, and about midway between recent failures drilled by W. J. Donnelly et al and Gulf Oil Corporation. Comparatively large cash bonuses were paid last year to the University for wildcat leases to the west of the lake. The company has derrick up for Mallet Land & Cattle Company 1-B, near SWc Labor 1, League 52, Scurry County School Lands, 2½ miles northwest of its discovery producer in the Slaughter field.

Gulf Oil Corporation's Mallet Land & Cattle Company 2, SWc Labor 25, League 34, Concho County School Lands, 2½ miles north by east of the most easterly producers in the Slaughter field, encountered small amount of sulphur water in drilling to 5090 feet, or 1569 feet sub-sea. The hole has been plugged back to 5070 feet for nitro shot and acid in broken oil pay, topped at 4975 feet.

J. E. Fitzpatrick et al's Car 1, located 2 miles south of the Wilson pool, Ward County, Delaware, lime strike made last year, encountered 500,000 cubic feet of gas in sand at 5148-49 feet and was fishing tools. Gas show also was logged at 5101-04 feet. It is located near the center of W¼ of N¼ H&TC Section 125, Block 34, 3 miles southeast of Quito. Top of Delaware lime was reported at 5055 feet, and first sand at 5085 feet, with an elevation of 2645 feet, thereby registering a lower structural position than the isolated producer. Fitzpatrick et al's Dyer 1, 1½ miles west by south of the discovery, is slated to resume drilling at 5085 feet, and occupies a more favorable structural position in logging top of lime at 5081 feet, with an elevation of 2709 feet.

Sinclair Prairie Oil Company's Moss 2-B, second test for a new pool uncovered earlier this year by the company on a line between the Judkins and Harper fields, Ector County, encountered water at 4162 feet, and was drilling at 4177 feet. It will be plugged back for nitro shot in minor oil saturation entered at 3950 feet. This new project is in SEc Section 40, Block 44, and is slightly higher on structure.

Cooper Gas Company has been formed by John M. Cooper, Dr. Geo. D. Morgan and C. E. Aikman, all of San Angelo, to take over two gas and distillate wells drilled by the group on the Bert Page ranch, Schleicher County. Their Page 2 was recently completed at 5441-[illegible] feet, rated at 9,500,000 feet daily. Additional development is contemplated to create adequate gas reserve to qualify for a gas fuel sales contract held with an electric power plant at San Angelo to become effective in 1941.

WEST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Crane County (Gulf-McElroy)—		
Gulf, McElroy 178	1351	2890
Crane County (McCamey)—		
Continental, Hughes 9-D	389	2423
Ector County (Foster)—		
Barnsdall, Foster 18	657	4220
Continental, Johnson 3	653	4265
Sunray Oil Co., York-Harper, Foster 4-D	513	4265
Ector County (Goldsmith)—		
Devonian Oil Co., Scharbauer 6-F	783	4194
Gulf, Goldsmith 118	1472	4205
Goldsmith 119	2276	4200
Goldsmith 120	2240	4205
Landreth Prod. Corp., Scharbauer 1-O	1524	4192
Scharbauer 1-P	629	4205
Shell, T&P Land Trust 3-B	145	4281
T. P. Coal & Oil Co., Scharbauer 22	1568	4260
Scharbauer 25	696	4263
Ector County (Harper)—		
Gulf, Parker 3	44	4250
M. B. K. Drl. Co., York-Harper, Cowden 2	645	4261
Shell, Cowden 15-B	1016	4280
Ector County (Jordan)—		
Atlantic, University 4-B	384	3650
Shell, University 2-D	1400	3635
Fisher County (Rotan)—		
Montour Prod. Co., W. L. Barker 2.	*	944
Gaines County (Wasson)—		
Continental, Wasson 1-52	1006	4985
Gaines County (Wildcat)—		
Osage Drl. Co.-Everest, B. E. Miller-Sun 1	*	5507
Howard County—		
Ajax Drl. Co., O'Daniel 1	496	2829
Lockhart Pet. Corp., Scott 3	1571	2854
Jones County—		
Brown Eagle Oil Co., Haynes 2	*	2090
Fain-McGaha Oil Corp.,Williams 4	295	1949
Iron Mt. Oil Co.-Humble, Jones-Stasney 5	720	3239
Pecos County (Netterville)—		
Superior, Brandenburg 2-C	139	2304
Pecos County (Payton)—		
J. D. Kugle Jr. & Jackson, Cordz 1	53	2078
Pecos County (Wildcat)—		
Magnolia & Tex-Mex Pet. Corp., McKee 1-a	*	6267
Pecos County (Torborg)—		
Stanolind-Continental, Tippett 16-C	24	507
Upton County (McCamey)—		
Anderson-Prichard, Elder 2	998	2220
Shirk 2	496	2749
Brown-Hancock & Hines Oil Corp., Baker-Conoco 5-D	1145	2312
Baker-Conoco 6-D	1187	2248
Ward County—		
Falls Oil Co. (was Webster), Johnson 1	314	2023
Gulf, Estes 102	972	2660
Hoss & Downey, Avery 1	*	2215
Schkade et al, Boogher 2	20	2038
Sinclair Prairie, Geo. Sealy-Magnolia 2	419	3063
Winkler County (Kermit)—		
Humble-Tide Water, Walton 10-D	611	2990
Magnolia, Walton 173	1287	2933
T. P. Coal & Oil Co., Baird 3	709	3070
Winkler County (Keystone)—		
Barnes et al, Crum 2	171	3351
Yoakum County (Wasson)—		
Murchison et al, Fairman 2	604	5108
Texas Co., Randall 1	150	5145

*Failures; †Junked; ‡Million cu. ft. gas

Pardue north extension has natural flow of 75 barrels

Abilene, Texas. — Completion of a north extension producer for the Pardue pool, Haskell County, became assured the past week when Texas Pacific Coal & Oil Company's Living[illegible]od 1, M. Criswell Surv[illegible], rated a natural yield of 75 barrels [illegible] from the Adams Branch lime at [illegible]11 feet. The oil pay was found 12 feet higher structurally than a flowing well ½ mile to the south. Acid will be used in bolstering the output of the new project. Amerada Petroleum Corporation is slated to start a south offset shortly.

The Pardue area is 5 miles northeast of Stamford. It is an anticlinal type of structure somewhat similar to the Avoca field, northeastern Jones County. The Adams Branch lime produces in comparatively few areas in the district.

Phillips Petroleum Company's T. Windham 1, semi-wildcat in southwestern Callahan County and 1 mile east of deep production, was running 7-inch casing for a production test in lime at 4140 feet. Top of Ellenberger was called at 4053 feet, with a show of gas in the upper section.

Texas drilling permits

The Texas Railroad Commission last week approved permits for drilling 181 new wells in Texas, 76 less than were allowed the week before.

Permits were approved for drilling 12 new wells in the East Texas field, including 6 in Gregg, 5 in Rusk and 1 in Upshur County. Four permits were reported for the remainder of the East Central Texas area.

There were 29 locations reported from West Texas, including 10 in Ector County, while 15 were listed from West Central Texas.

The Gulf Coast area topped the list with 38 locations, while Southwest Texas operators reported 25, including 11 in Caldwell and 10 in Duval County.

The commission approved 33 permits in the Panhandle with 11 in Hutchinson County, while operators in North Texas were allowed 25 locations, including 17 in Wichita County.

East Texas Fields

Southwest Flag Lake outpost gets dry gas

Tyler.—Dry gas production was developed by The Texas Company's Tarkington 1, minor southwest outpost for Flag Lake pool, northwestern Henderson County, from Woodbine sand at 3008-32½ feet. The well was rated at 1,250,000 feet daily through quarter-inch tubing choke, and will be utilized in supplying fuel for other drilling tests. Humble Oil & Refining Company's Hearne 1, west offset to an oil producer, was flowing 5 barrels of oil hourly through a small choke from Woodbine at 3055 feet.

Humble Oil & Refining Company and Gulf Oil Corporation's Horton-Dickson 1, second Lower Trinity prospect for the east flank of East Texas field in Gregg County, was drilling at 6070 feet in a shale section between the first anhydrite stringer and the massive section. It is checking higher on structure than the partnership's completed gas and distillate well in the Pettit zone at 7244-86 feet.

Cayuga operators protest requested allowable cut

Something new in proration problems was submitted to the Texas Railroad Commission last week as operators in the Cayuga field protested the request of Tide Water Associated Oil Company that the field's daily average allowable be reduced to 6000 barrels.

Some months ago Tide Water Associated entered into a contract with all operators to purchase all their allowable oil, offering a premium of five cents a barrel. At that time, they had contracts for approximately 7500 barrels a day. Last April one of the parties with whom Tide Water Associated was contracting asked to be relieved of 1500 barrels, and Tide Water Associated to keep a good customer happy acceded to the abrogation of their contract. Tide Water Associated in turn then asked the operators to consent to cutting the field's outlet by 1500 barrels. The operators demurred and Tide Water Associated consented to go along for a while in the hopes of finding a new outlet, but no market was found and to date, according to Tide Water Associated's George Goad, the company has piled up a storage of 900,000 barrels of Cayuga crude as against a reasonable storage of 300,000 barrels. Hence, Tide Water Associated came to the commission with a request for a reduction.

If the commission would reduce the allowable, the terms of the contract with operators would be satisfied, but the operators protested. They said that they had a solvent purchaser for all the oil that the commission would allow them to produce and that the commission should not interfere with the terms of the contract. Tide Water Associated contended, on the other hand, that so long as oil is going to storage, there is a demand for only 6000 barrels, and therefore under the market demand law the field should be restricted to that amount.

Examiner Charles Langford turned the record over to the commission for a decision.

Tide Water Associated also requested that the method of prorating in the field be adjusted in order that pumping wells might not be given more than their share of the oil. They contended that the present potential factor in use in the field is resulting in too great a proportion of the oil going to the pumpers.

Panola County test hits Permian salt

Shreveport.—The third test in the Shreveport territory to penetrate the Permian salt is The Texas Company's Claude Adams 1, Thomas Cox Survey, in Panola County, Texas, in the Bethany district.

This test was coring last week at 11,160 feet in Permian salt logged at 11,067 feet; elevation is 287 feet. Electrical logging device was run when the test was at 11,103 feet and is said to have shown some sections with good porosity and resistivity in the lower Marine logged at 7792 feet.

Only one test in North Louisiana logged Permian salt, this being R. W. Norton's Payne 1, Section 27-23n-16w, Caddo Parish, Rodessa district, that went to 11,486 feet to set a depth record for this territory that still stands. One test in Arkansas also penetrated Permian salt, this being Lion Oil Refining Company's test several years ago in Section 4-16-15, Smackover district, Union County, that was abandoned at 7255 feet.

Three miles southwest of its recently completed Johnson 1, Alexander Johnson Survey, that was a 30 million foot wet gasser in the Henderson horizon, Arkansas Fuel Oil Company last week made location for T. D. Rowell, Jr. 1 (508-ac tract), Thomas English Survey, Marion County.

EAST TEXAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Joiner Area—		
Bezoni et al, Ashby 1 (5/10-ac)	..1500	3668
Blackwell O&G Co., Moore 11 (44-ac)	6800	3644
Gulf, Thrash 19 (83.56-ac)	6500	3766
Hunt Oil Co., Bradford 18-B (98.15-ac)	 250	3670
Bradford 19-D (176.3-ac)	 225	3607
Nathan et al, Deason 3 (5-ac)	... 500	3656
Ohio, Cross 92 (814.54-ac)	3600	3633
Sinclair Prairie, Wright 32 (162.61-ac)	3500	3755
Stewart Oil Co., Cook 5 (5-ac)	5000	3725
Sun, Cooper 6 (27.97-ac)	2500	3635
Kilgore Area—		
Flannigan et al, Kennedy 6 (20-ac)	120	3690
Gulf, Alexander 35 (209.01-ac)	6000	3562
Humble, Sexton 39-B (258.6-ac)	..4500	3700
Kemp et al, James-King 5, blk 138	1200	3539
Nioco Oil Co., Knowles 10 (7.03-ac)	1500	3560
Potter et al, Mitchell 3 (2.21-ac)	..6500	3620
Shell, Watson 83 (385.2-ac)	8400	3694
Watson 85 (385.2-ac)	8500	3681
Longview Area—		
Arkansas F. O. Co., Walker 5 (22.65-ac)	7200	3652
Cities Service, Akin 20 (100-ac)	...8500	3643
Bander 20 (92.17-ac)	9000	3639
Cushing Drl. Co.-Joe Long, Owens 20-A (208-ac)	2600	3595
Owens 9-C (72-ac)	1500	3623
Humble, Miller 16-B (99.35-ac)	...4000	3714
L. & G. Oil Co., Landers 1 (18/100-ac)	5000	3657
Royal Pet. Corp., Skipper 3 (18.4-ac)	 720	3580
Shell, Slaton 22 (123.65-ac)	8500	3654
Slaton 23 (123.65-ac)	8500	3653
Stanolind, Jones 18 (83.23-ac)	7800	3589
Snoddy 3 (12½-ac)	7000	3565
Tide Water Associated, Castleberry 32 (202-ac)	3000	3572
Cass (Rodessa)—		
Texarkla Oil Co., Mayo 1, Holmes sur	 384	6080
Marion (Jefferson Rodessa)—		
Arkansas F. O. Co., Holland 4, John Hanks sur	....¶2½	6090
Walker 1, J. Humphries sur	..... ¶65	5960

*Failures; †Junked; ¶Million cu. ft. gas.

Texon promises to control Agua Dulce crater

The Texon Oil Company has promised the Railroad Commission to bring in before September 15 some plan for the control of the crater in the Agua Dulce field which land owners claim is ruining their lands. Evidence was presented to the commission last week that seepage from the crater is permeating the water sands and ruining the water wells in the vicinity of about three miles.

The operators wanted the commission to order all the wells in the field, or at least all the wells in the vicinity of the seepage, opened up for a period to see if that would relieve the pressure on the crater. Texon and Union Producing Company, the principal operators in this area, protested that there was no scientific basis to believe that this would help matters any.

According to the evidence, the gas seepage is causing water wells to crater and "bubble" all around the vicinity of the water wells.

Texon has been trying every way known to control the cratering and kill it, but so far all efforts have failed. Union Producing Company, interested only as an adjacent lessor, submitted a suggestion. It proposed that the crater, which is really three craters and around which dikes have been built, be surrounded by a series of water wells. The pressure from the escaping gas would cause these wells to flow and the water would be diverted into the crater from a miniature lake. The three relief wells would be drilled to offset the three craters, and the water pumped into the relief wells until the crater was killed.

Then, according to Union's suggestion, the relief wells could be put into production from the shallower sands and the only expense of the plan would be the cost of the water wells.

Texon took the suggestion under advisement and promised to have some plan worked out within two weeks.

Jones announces 100-well program on Ezzell ranch

San Antonio.—A development program involving approximately 100 field wells and eight wildcats on the Ezzell ranch in McMullen County was announced by Edwin M. Jones, San Antonio operator and discoverer of the 1500-foot Loma Novia sand producing area. The company immediately will move to a location one mile southwest of present production for the first test. If successful, the next location will be one-mile farther west. The field development program likely will be carried on with other rigs owned by Jones.

This development ultimately will involve in excess of $400,000, it is believed, although no estimate on the expenditure was announced.

The reserve includes deeper possibilities, one well below 5000 feet finding oil and gas shows. It is not known, but expected, that several wells will be carried to the lower levels.

Southwest Texas Fields

Jackson County discovery associated with Greta group. Another Vicksburg trend strike in course of completion. La Rosa outpost well has oil showing in third formation.

Corpus Christi—Magnolia Petroleum company's new Jackson County discovery again placed the northeastern portion of the South Texas Gulf Coast in line for an extensive development program. West Ranch 3-A, the discovery, flowed 132.5 barrels of 25.2 gravity crude on a 24-hour gauge through 9/64-inch choke, pressures being 325 pounds on tubing and 810 pounds on casing. The well is in sand at 5080-86 feet.

This discovery, with an elevation of approximately 40 feet, derrick floor, topped the Heterostegina at 4777 feet and the Marginulina approximately 90 feet deeper, placing it at a point equivalent to or just below the Greta sand. If the sand does correspond to that productive in the Greta group, it may be looked upon as a highly important discovery. No other field in this general area has been productive in this horizon. Others have been comparatively poor producers in spotted Frio and lower Marginulina sands.

The company has approximately 14,000 acres under lease in a solid block, making it a single-company operation. The well is 5650 feet west of the Lavaca River (east line of lease) and about 3 miles south of Vanderbilt townsite, near the north line of the lease.

Three Sands at La Rosa

Refugio County's new La Rosa field, southwest of Woodsboro, gives promise of being another Refugio from a multiple sand standpoint. A third sand in the Frio zone has been uncovered by Coronado Oil Company with Mrs. D. D. Rooke 1, 7600 feet southeast of the discovery. It showed for a distillate producer in the regular sand at 5364-5420 feet, when recovered gas and distillate from sand at 5562-77 feet.

Another sand at 5873-5908 feet, the bottom of hole still in sand, was encountered. A drill-stem test at 5873-83 feet developed 280 pounds pressure and 10 feet of distillate in 4 minutes. A second drill-stem test at 5893-5902 feet resulted in the test flowing pipe line oil in 20 minutes through ¼ and ⅜-inch chokes. Pressure at 12 minutes was 105 pounds but dropped to 80 pounds while the well flowed. Another test at 5902-8 feet also flowed but in 18½ minutes with pressure 125 pounds. The crude is 36 gravity.

This well is in the upper Tomoconnor sand, indicating that a thin body lies below. Already 35 feet of sand has been cored with the test apparently still far above the water line.

Union Producing Company successfully overcame the heaving shale problem which had hindered drilling in Minnie Brown 1, Agua Dulce deep test, several weeks ago. The test heaved at 10,768 feet and filled back to 8830 feet. The hole was reconditioned and cleared to bottom, following which it was drilled to 10,792 feet. Mud was reconditioned and the well was going ahead.

Pure Oil Company was still tied up cutting and pulling drill pipe in State of Texas 1, Tract 522, on the Bird Islands prospect in Laguna Madre, Kleberg County. It is bottomed around 9350 feet.

Jim Hogg County oil strike in Vicksburg trend

San Antonio.—Vicksburg trend, South Texas' highly touted new producing zone, scored another strike on a geophysical prospect with Humble Oil & Refining Company setting casing on Anna Kelsey Bass 2, extreme southeastern corner of Jim Hogg County. The discovery ratio along this trend has been the highest of any concerted wildcatting program in history.

H. H. Howell took three wells to open the Alice field, Jim Wells County, the first two being mechanical failures. Magnolia Petroleum Company took only one well to open the East Premont area and one to open the Bandera field. Wheelock & Collins, after a junked hole and a blow-out, opened the La Reforma pool on third attempt. Standard Oil Company of Texas' Sajita prospect failed to materialize on its first well, as did the Callaway and Richardson Ben Bolt prospect on two wells and Humble Oil & Refining Company's prospect north of Ben Bolt on its first three wells. Shell Petroleum Corporation's Von Blucher deal in southeastern Jim Wells County, drilling around 7000 feet, is not looking too good. The average, however, of well worked prospects, have been hitting "on the nose."

Humble Oil & Refining Company's new strike, and possibly one of the best, is ready for completion. It cored oil sand 4730-45 feet, no recovery to 4738 feet, but first foot cut like soft sand and next two like hard sand. Shale was found to the bottom of the hole at 4754 feet, all depths being corrected by steel line measurement. First drill-stem test at 4723-36 feet recovered 950 feet of pipe line oil, 45 pounds working pressure, and 270-foot water cushion, in 20 minutes through ¼- and ⅜-inch choke. A second test was made at 4724-54 feet, tool slipping to 4726 feet, in which 1011 feet of pipe line oil, 455 feet of oily mud and 270 feet of water were recovered in 20 minutes. Bottom-hole pressure on the first test was 750 pounds, but on the second, it registered zero.

The discovery well is 1399 feet from the east county line and 1399 feet from the south line of the Kelsey Bass Ranch, San Rafael Grant, 7 miles southeast of Agua Nueva. The test, which is in the basal Frio formation, is in a 30,000-acre block held solidly by Humble Oil & Refining Company.

Several key outposts are being drilled to the new Vicksburg trend fields, but none have reached critical depths. Humble Oil & Refining Company's William Adams 1, M. Lopez Survey, 5 miles northeast of Ben Bolt in Jim Wells County, has been junked after drill pipe was stuck in heaving shale at 6066 feet.

Al Buchanan Production Company and Blanco Oil Company have opened another new oil sand in the south end of the Alice field, Jim Wells County, this one being in the Frio. M. Rattan 3, Lot 14, ran a drill-stem test at 5007-12 feet, seat being at the top of the sand, recovering 660 feet of pipe line oil, 60 pounds pressure in 15 minutes. To protect an offset, it was carried to 5305 feet, finding the regular Vicksburg pat at 5287-5302 feet. Completion was being effected after the well flowed with 125 pounds pressure on a 15-minute drill stem test.

New Bee County area expected to be small

Beeville—Tulsita, Bee County's newest Pettus sand oil field, was being placed on production over the week end. Atlantic Refining Company's J. L. Courtney 1, after showing oil and mud, but no pressure on tests of Pettus sand 3658-65 feet, is being rigged up to pump. The test, located on a farm-out of Humble Oil & Refining Company, is 330 feet from the south line and 990 feet from the west line of a 160-acre lease out of the 471.8-acre tract, George A. Kerr Survey. It is two miles northwest of Pettus.

The discovery is expected to cover only a small area, several other tests in the sector fairly well defining the limits of the pool.

Devonian Oil Company's Nannie Maley 1, H. Coley Survey, two miles south of Mineral, Bee County, apparently determined a fault when it ran considerably lower than expected and was abandoned in the Yegua at 4170 feet.

Sun Oil Company's Shaper 1, drilling ahead below 5600 feet, is being watched with considerable interest. It is in the John F. Payne Survey, 5 miles southwest of Weesache, Goliad County.

Kendall County area again in producing column

San Antonio—Restoration of the Sisterdale prospect in northeastern Kendall County to production looms with Millican & Norman preparing to complete Willie Werner 1, J. F. Torrey Survey. The well drilled into 1½ feet of limestone at 912 feet and set casing after oil rose 180 feet into the drill hole. A string of 7-inch previously had been set at 735 feet.

The test is 65 feet north of Sterling et al's Werner 1, completed several years ago at the same level as a small producer. Due to complications, the well finally was abandoned after producing several hundred barrels of crude. It is likely that this is basal Pennsylvanian production, but some classify it as Ordovician.

If successful, this will be the second pool to be opened in this Pennsylvanian-Ordovician group in the Hill Country or lower Edwards Plateau, both being established this year.

Humble Oil & Refining Company received a setback with C. C. Schley 1, Survey 174, on the Shattel prospect,

Frio County. The well cored Navarro sand at 3532-51 feet and on a drill-stem test, seat at 3520 feet, 175 feet of mud with oil and 180 feet of salt water were recovered in 15 minutes. It was being drilled deeper to the Edwards limestone.

SOUTH TEXAS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
SAN ANTONIO DISTRICT		
Atascosa County—		
Chapman Minerals & Altgelt, Gipson 1, F. de la Garza grant	*	3019
Richardson et al, Fisher 1, AB&M sur	*	850
Western Gulf, Vanegas 1, F. de la Garza sur	*	2743
Bexar County—		
Roger Putnam, Simon Wetz 12, Von Ormy	3	710
Burleson County—		
Peerless, GC&SF RR Co. 1, Lastley Lge	*	2028
Caldwell County—		
Artz et al, Campbell 1, Martinez sur	15	1565
Bruce Allbright & Brown, Glasssock & Anderson 1, Reaville sur	*	2185
Magnolia, Maggie Moore 22, Luling	111	2155
Ogden & Howard, Lynce 1-B, Buchanan	*	1969
Guadalupe County—		
McNear & Assoc., Forsage 1, Darst Creek	*	2672
Morris Oil, Johnson Anderson 2, Darst Creek	80	2645
LAREDO DISTRICT		
Duval County—		
Cox & Hamon & Gorman-Yoakam, Cuellar 11	169	2813
Eagle Hill, Foster 9-B, Eagle Hill	100	1502
Magnolia Pet. Co., Duval County Ranch 7, Casa Blanca	85	1200
Well Estate 11, Hoffman	375	2811
Glen McCarthy, Synder 5, N. Sweden	¶1	5371
Mid-Continent, Rodriguez 1, N. Sweden	¶1 & 5	5341
Joe Palmer, Gruy Estate 1, Rancho Solo	*	3217
H. J. Porter, Fitzsimmons 3 (1-B), Fitzsimmons	400	4655
Fred W. Shield, Martin 1, Casa Blanca	15	1961
The Texas Company, Meek 1, Seven Sisters	129	2675
McMullen County—		
V. G. Schimmel, Kountz 3, San Jose	*	1200
Starr County—		
Sun Oil Company, Garza 1, Carmargo Juris.	*	2844
Webb County—		
Capt. C. R. Mayberry, Puig Bros. 17, Aviator	*	400
CORPUS CHRISTI DISTRICT		
Bee County—		
Devonian, Maley 1, Coley survey	*	4170
Brooks County—		
Keystone Royalties, Mestina 1, N. Alta Mesa	*	2570
Calhoun County—		
Humble & Plymouth, Marshall 9, Heyser	850	5478
Sinclair Prairie, Bennett 16, Heyser	400	5588
Jackson County—		
Magnolia Pet. Co., West Ranch 3-A, Musquiz	500	5086
Porter et al, Pressley 3, Cordelle	225	2702
Jim Wells County—		
Robt. Bowles, Ragland 2, Alice	700	5299
Fidelity Oil & Roy., Lindsay & Reed 1, Alice	*	5534
Humble Oil & Refg., Adams 1, Lopez Grant	†	6066
Pratt & Browning, Stillwell 1, Alice	500	5305
Live Oak County—		
N-P Oil Company, Griggith 1, Poitevent	*	945
Richardson Pet. Co., Reagan 1, Docharty	*	2386
Nueces County—		
Houston Oil Co. of Tex., Fee 2, Saxet	250	6615
Southern Minerals, Bliss 22, Saxet	60	6900
Stanolind, Spessard 12, Luby	350	5063
Refugio County—		
Copano Oil Co., Tom O'Connor 19-B, Tomoconnor	1250	5933
Houston Oil Co. of Tex, Pratt-Hewitt-Rooke 52, Refugio	600	6844
Quintana Pet. Corp., Heard 23, Tomoconnor	3500	5923

*Failures; †Junked; ¶Million cu. ft. gas

McMullen County wildcat pumping 80 barrels per day

Laredo—A shallow Mirando district oil field in the extreme southwest corner of McMullen County was proved August 31, when Bruce Albright et al's Nueces Land & Livestock Company 1, was completed in 12 feet of sand as an 80-barrel per day pumper. The test showed almost enough pressure to flow from the lower Mirando sand at 1201-13 feet, but artificial lift was resorted to for final completion. This operation is in NW NE SW Section 119, 3 miles from the west county line and ½ mile from the south county line. It is several miles up dip from the Charamousca field production, yielding 22 gravity crude from the same sand.

Elsewhere in the Mirando district, wildcatting during the past week has not been so successful. With the exception of two field extensions, work has centered around routine operations and abandonments.

Glenn Stewart and C. H. Nye's W. R. Peters 1, NW SE NS Section 29, ¾-mile east extension to Rancho Solo field in Duval County, was rigging up to pump as a small producer after perforating at 1853-56 feet in Cole sand. It had drilled to 3200 feet.

W. A. Wagner's L. C. Lampe, Section 497, just south of the Hoffman field and between that area and the South Hoffman production, was completing in the 2800-foot zone after showing oil at several upper levels.

Texas Gulf Coast

Eureka deep test passes up new distillate sand. New sand found on northwest flank of Orange field.

Houston.—Fairbanks field, Harris County, was extended 4000 feet east last week when Stanolind Oil & Gas Company completed Look 1, S. Lewis Survey, in a sand over 100 feet deeper than the Fairbanks producing horizon. Look 1 initialed 251 barrels net oil and 39 barrels water. The well was flowing through a ¼-inch choke with a tubing pressure of 1800 pounds and a casing pressure of 2100 pounds. It was drilled to 7495 feet and plugged back. Seven-inch casing set at 6968 feet was perforated with 30 shots from 6947 to 6956 feet.

Stanolind has made location for another extension well at Fairbanks. A. Schumachier 1 is about 2000 feet northeast of Look 1 and it is out of the northwest corner of a 100-acre tract in the J. Doswell Survey.

Between Fairbanks and Satsuma fields, Harris County, Housh & Thompson's Fisher Estate 1, T. Hogan Survey, was abandoned at 7703 feet last week after failing to pick up oil sands either in the Satsuma or Fairbanks pay horizons. The well was running high while drilling.

North Flank Well Completed

On the north flank of the Fairbanks, Mortex Oil Company completed Reid 1, G. Ayers Survey, at 6847 feet in sand showing oil, topped at 6810 feet. After perforating casing the well came in flowing 672 barrels daily through a ¼-inch choke.

Atlantic Refining Company has entered the Fairbanks field by announcing location for Abrams 1 on the northeast flank. It is 330 feet from the south and east line of the lease in the P. Walton Survey.

East of production at Clinton, Harris County, Stanolind Oil & Gas Company's C. J. Caywood 1, Reels & Trobough Survey, appears to be a dry hole. Last week it logged salt water sands in the Miocene formation from 4659 to 4672 feet and has been shut down for orders. The same operator's Sanders 2 also logged salt water sands from 4470 to 4489 feet.

Jack Frazier's deep test at Eureka, L. Lackner 1, which has already discovered a new deep gas and distillate sand from 8074 to 8092 feet, is drilling ahead below 8638 feet in shale. It should be down to the 9000-foot contract depth next week. If no deep sands are found, the well will be plugged back and tested in the new sand.

Tide Water Associated Oil Company's Lackner 1-B, north outpost test at Eureka, H. Reinerman Survey, made 576 barrels daily through ¼-inch choke on a potential test from 7688 to 7698 feet. Means & McGehee completed Lackner 1-C at Eureka. It made 580 barrels daily through ¼-inch choke from 7702 to 7712 feet.

Pleasant 1, Shell Petroleum Corporation's second well at Cheek, Jefferson County, showed gas and oil on a drill stem test at 7687 feet last week. The test was made through a ⅜ and ¼-inch choke and the testing tool was opened 10 minutes. In 2 minutes the well showed a pressure of 260 pounds and then went up to 370 pounds. It blew gas, distillate and a little free oil. When coming out of the hole with 3 stands the well made a head of oil. The operators are plugging back to about 7715 feet for another test.

McFaddin 2, Shell Petroleum Corporation's second well at Clam Lake, Jefferson County, was shut down at 3870 feet after a drill stem test showed 100 pounds pressure on the tubing and 600 pounds on the casing. When closed in, the pressures dropped to zero. McFaddin 2 made 13½ barrels of fluid the first hour.

New Sand at Orange

On the northwest flank of Orange field, Orange County, Red Bank Oil Company discovered a new sand in Michel 1, William Dyson Survey, at 5535 feet. The sand showing oil was cored to 5576 feet, where 7-inch casing was set for a production test. Michel 1 is about 2000 feet west of Union Pro-

ducing Company's wells, which were completed in new sands on the north flank of the field.

South of Anahuac and in the E. Douthit Survey, Salt Dome Oil Corporation made location for Ogden 1. The wildcat is midway between the north and south line and 466 feet west of the east line of a 31-acre tract, being Tract 4 of the E. Douthit Survey, Abstrict 329.

At Green's Lake field, Galveston County, Sun Oil Company's Houston Farms Development Company 2, D. Buckley Survey, showed salt water on a production test last week. Casing was perforated from 6965 to 6985 feet and the well flowed 500 barrels of fluid daily, 90 percent salt water and 10 percent oil. Tubing pressure was 325 pounds and casing pressure was 900 pounds. The perforations have been squeezed with cement for another test.

Hitchcock field, Galveston County, received another failure last week when N. W. Hunter abandoned Hughes 1, A. Burke Survey, at 6020 feet. Salt water sands were logged in Miocene sands.

Five miles northeast of McCroskey field, Matagorda County, Western Gulf Oil Company made location for Rust 1, 460 feet from the most westerly line and 5986 feet from the southwest corner of A. Jackson Survey.

North of Markham, Matagorda County, Ohio Oil Company's Cornelius 1, P. C. Yarborough Survey, was drilling on down to the 8000-foot contract before abandoning. The well recently cored salt water sands at 6525 feet and 6584 feet in Frio formation.

Mission—Tom Graham Oil Company was making a production test in A. Gutierrez 1, Share 44-H, Porcion 88, and possible connection between the Barbacoas and north extension areas in Starr County. The well, located one mile south of Davis et al's recently completed producer, is bottomed at 2627 feet in 11 feet of sand. A drill-stem test recovered 60 feet of oil-cut mud and no pressure in 30 minutes after which casing was landed at 2616½ feet.

TEXAS GULF COAST

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Anahuac—		
Humble, Grippon 18	676	7080
Johnson 22	549	7085
Batson—		
C. F. Yust, Heywood 40	35	473
Boling—		
L. Paterson, Banker 19	10	445
Conroe—		
American Liberty, State School 1	270	5074
Dickinson—		
Atlantic, Jones 6	484	8138
Eureka—		
Means-McGehee, L. Lackner 1-C	580	7735
Tide Water, L. Lackner 1-B	567	7714
Fairbanks—		
Housh & Thompson, Fisher Estate 1, w of field, T. Hogan sur	*	7703
Josey-Nelms, Parker 4	694	6839
Mortex Oil Co., Reid 1	672	6847
Showers-Moncrief, Reid 1-B	751	6843
Friendswood—		
Humble, Beamer 21	605	6048
Grey 11	617	6040
Grey 12	575	6040
Hardin—		
Arkansas, Green 3	536	7662
Hastings—		
M. G. Hansbro, Alexander 1	332	6131
Humble, Brown C-2	124	6114
Stanolind, Surface 8	490	6078

South Louisiana

Chacahoula salt dome wildcat makes 37 gravity oil.

New sands at Valentine and Bayou Des Allemands.

Lake Charles.—Interest during the past week centered around Sun Oil Company's wildcat in Lafourche Parish and Shell Petroleum Corporation's Peters 1 in Terrebonne Parish where sands indicate the presence of commercial oil. Other important developments in the territory were the recompletion of the first oil well at Bancroft, Beauregard Parish, discovery of new sands in several old fields and extensions to proven fields.

Sun Oil Company has proven that another old established salt dome in the Louisiana Gulf Coast will produce commercial oil. Moreover, the new discovery is Sun Oil Company's first in South Louisiana. Dibert, Stark and Brown 1, Chacahoula salt dome, Section 70-15s-15e, cored sands with oil shows from 7240 to 7253 feet and on a 15-minute drill stem test showed 13 stands of 37 gravity oil, one stand of mud, and a 30-pound pressure through ¼-inch chokes. Nine and five-eighths inch casing with screen, liner and back pressure valve were set to bring the well in Labor Day.

Chacahoula, a piercement type dome, was discovered with reflection seismograph by Gulf Oil Corporation in 1926 and was established as a salt dome by Gulf's Starks 1 when cap rock was encountered at 1035 feet and salt at 1302 feet. Several wells were drilled on top of the dome, the deepest being around 5000 feet.

On the South Houma prospect, Terrebonne Parish, Shell Petroleum Corporation's Peters 1, Section 73-18s-18e, has cored oil sands in Miocene formation and is preparing to make a drill stem test. At the end of the week the operators were reaming down to 9880 feet. The crew attempted to get the testing tool down for a test but it would not go deeper than 9864 feet. Peters 1 cored sand with shows of oil and a good cut on test from 9868 to 9880 feet. Previous cores from 9777 to 9797 feet showed oil, and these sands may be tested in the future.

Beauregard Parish, definitely has its first oil field. Last week Republic Production Company brought in Columbia Land & Timber Company 1, Bancroft area, for the second time. It made an estimated 600 barrels daily through a ¼-inch choke from Lower Cockfield sands at 7321 to 7326 feet. Tubing pressure was 1100 pounds and casing pressure was 1300 pounds. The well was brought in some time ago flowing at the rate of 500 barrels daily, but later made as high as 75 percent salt water. The hole was plugged with cement and perforations from 7320 to 7330 feet were squeezed off. The crew perforated four feet higher and shut off the salt water.

Bancroft was first discovered as a gas field May 4 when Republic Production Company's Lutcher Moore 1 came in as a gas well from 7579 feet. The well made 3,000,000 cubic feet of gas daily. It was shut in and when it was opened it flowed about 24 barrels of 63 gravity distillate daily and two barrels of salt water.

Company, Well and Location	Init. Prod. Bbls.	Depth
Hitchcock—		
N. W. Hunter, Hughes 1	*	6020
Lochridge—		
Shell, Texas Prison Farms B-5	312	6365
McCroskey—		
Pierce Estate, Fee 4	80	6616
North Cheek—		
Magnolia, Phelan 5	108	8319
Old Ocean—		
Harrison & Abercrombie, Larson & Edling 1	341	10,159
Segno—		
Gulf, Wing 11	74	6662
Silsbee—		
Republic, Reeves 1	649	6913
South Bay City—		
Hammon Exploration Co., Badough 1	198	9250
Spanish Camp—		
Albert Plummer, Corbett 1	¶1	3000
Thompsons—		
Gulf, Booth X-14	252	3175
Tomball—		
Humble, Weindroff 4	¶1	5587
West Beaumont—		
Stanolind, Keith-Dowling 6	469	5385
Withers—		
Texas Co., Pierce Estate 50-C	71	5557
Brazoria County —		
Glenn H. McCarthy, Street 1, Pearland prospect, D. H. M. Hunter sur	*	6016
W. C. Neville, Houston Farms Dev. Co. 1, Rattlesnake Mound prospect, Perry & Austin sur	*	7007
Ft. Bend County—		
Buchannan et al, Harris 1, Fulshear area, J. Randon sur	*	1550
Harris County—		
S. G. Harrison, Lafferty Estate 1, sw of Clinton	*	4515

*Failures; †Junked; ¶Million cu. ft. gas.

New Sands Found

Lafourche Parish was probably the most important area in the Louisiana Gulf Coast during the past week for finding new oil. Besides the new discovery at Chacahoula, two new oil sands were found at Valentine and one at Bayou Des Allemands. There is also possibility of another new sand at Raceland.

Pan American Production Company uncovered two new sands at Valentine when Community 2-B and Harange Plantation 18 came in for good producers. Community 2-B, a south flank test, opened the deepest sand yet found in the field. It flowed 12 barrels per hour through an ⅛-inch choke, with a tubing pressure of 2100 pounds from 9325 feet. Top of the sand was logged at 9318 feet. Harange Plantation 18 was completed in sands at 4606 to 4619 feet flowing 25.4 barrels per hour through a ¼-inch choke. Tubing pressure was 760 pounds and casing pressure was 665 pounds.

Bayou Des Allemands, Lafourche Parish, which has been the "black sheep" of Amerada Petroleum Corporation's operations in South Louisiana, probably will turn out to be one of the major fields in the district. Last week the company's Gheens 1, Section 56-

15s-20e, logged 32 feet of oil sand from 7215 to 7288 feet, with the balance of the cores being broken formations with oil shows. The company is drilling deeper and will probably plug back and test this new sand soon. The hole was bottomed in hard sandy shale at 7414 feet at the end of the week.

At Raceland, Lafourche Parish, Amerada Petroleum Corporation's South Coast Corporation 2, Section 34-15s-19e, was waiting on cement to set at 12,200 feet last week after running 4¾-inch casing from 10,189 to 12,164 feet. If the well produces from below 10,208 feet it will open a new sand for the field.

In Terrebonne Parish and near Lake De Cade, where The Texas Company has done considerable work with reflection seismograph, the company has spudded in on Continental Land & Fur Company 1, located 3309 feet south and 662 feet east of the northwest corner of Section 29-18s-14e. Humble Oil & Refining Company has drilled a deep well on the Continental Land & Fur Company's property near The Texas Company's new wildcat.

Salt Water Outpost

Three-fourths mile south of production at Gibson, Terrebonne Parish, Shell Petroleum Corporation was drilling on Kuntz 1, Section 40-17s-15e, at 10,650 feet after making a drill stem test of a new sand at 10,525 feet and recovering salt water. The test, made in 10 minutes through ¼-inch choke, recovered 30½ barrels of salt water.

On the north flank of Lafitte, Jefferson Parish, one of the deepest producing fields in the world, The Texas Company is preparing to complete Madison Realty Company 3, Section 17-17s-24e. Sand and shale showing oil was cored from 10,055 to 10,119 feet. Casing, set to bottom, will be perforated.

When Gulf Oil Corporation attempted to establish a new sand at Quarantine Bay, Plaquemines Parish, salt water was recovered. Orleans Levee Board 1-A was nearing the established producing horizon at the end of the week at 8100 feet. A drill stem test was made at 7754 feet in 5 minutes through ¼-inch chokes and 990 feet of fluid was recovered; 270 feet of the fluid was salt water.

Near the Erath prospect, Vermilion Parish, DeSoto Oil Company made location for A. W. Richardson 1, 1503 feet feet east and 1350 feet south of the northwest corner of Section 30-12s-4e.

Magnolia Petroleum Company's second well at West Gueydan, Vermilion Parish, missed the 7550-foot sand and will probably be abandoned. Henry Reese 1, Section 5-12s-2w, is bottomed at 7644 feet in sand with no shows.

On the West Lake Verrett prospect, St. Martin Parish, Shell Petroleum Corporation's Jeanerette Lumber Company 1, Section 14-14s-12e, was shut down waiting on orders after recovering salt water on a drill stem test. The well was tested 3 minutes in sands at 6931 to 6955 feet, and 5 stands of mud, 6 stands of salt water and sand, and 6 stands of salt mud were recovered.

On the Henderson salt dome, St. Martin Parish, The Texas Company has set 7-inch casing at 8912 feet in St. Martin Land Company 11, Section 21-8s-7e. The hole is bottomed at 9404 feet in salt. Top of the salt was logged at 8904 feet.

North Louisiana Fields

Five drilling permits issued for Shreveport field.

Test indicates minor southern extension for Lisbon.

Shreveport—Five drilling permits for the new Shreveport oil field opened July 15 by R. E. Allison's Ellerbe 1, SW NW 27-18n-14w, just outside the Shreveport city limits, were issued last week, all for 40-acre tracts except one in close proximity to the city limits which was on a 14.81 acre tract.

Telegraphic information that the permits had been authorized at New Orleans were received by the Shreveport division of the Louisiana Conservation Commission but up to Thursday copies of the permits issued had not been reseived here. However, the permits had been applied for through the Shreveport office of the commission. The permits authorized included one for a west offset to the discovery well and another was for a test southeast of Shreveport in Section 37-17n-13w. Both these tests are ready to spud, locations having been made previously.

Indications that the south end of the Lisbon field in Claiborne Parish will be extended one location south were given last week when Harry Fotiades' C. S. Rodgers 2, SW NW 13-20n-5w, cored 13 feet of saturated Basal Glen Rose lime fairly tight and final casing was cemented. Later in the week the test swabbed some oil without acidization but operators decided to acidize, a procedure that has been followed in approximately 90 percent of the Lisbon wells.

Cotton Valley Test Is Salt

A northwest edge test in the Cotton Valley field, Webster Parish, that had shown indications of being the field's third crude oil producer in the Lower Marine, later had a salt water showing with the oil and was plugged back 40 feet for another test. This is North American Consolidated Oil Company's W. M. Burrow 1, C NE NW 21-21n-10w, that logged saturation in the Bodcaw ("E" sand) from 8668 to 8696 feet; elevation is 240 feet. Total depth is 8725 feet. This well had checked considerably lower on top of the Bodcaw sand than did Stanolind Oil & Gas Company's Pardee 1, Section 36-21n-10w, diagonally across the field from present test. Pardee 1 was 470 feet down dip from top of the structure which before produced in all Lower Marine wells only gas and distillate. It had been hoped that all flanks of the structure down dip would produce oil but it now appears that the salt water level is at a shallower depth on the northwest flank than on the southeast flank or on the south side where in Section 3-20n-10w, the second oil producer for the field had been completed in the Lower Marine series.

Magnolia Petroleum Company was arranging to deepen, to 8500 feet, Pardee C-1, NE NW NE 17-23n-11w, Webster Parish wildcat north of the old shallow Cartersville field that logged saturation in the basal Glen Rose lime. The test swabbed dry after casing was perforated in this horizon. Total depth is 6025 feet.

SOUTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Abbeville—		
Continental, Brookshire 2	136	7883
Bancroft—		
Republic, Lutcher Moore 1, (8050 ft, pb)	¶3	7579
Cameron Meadows—		
Burton Sutton, School Land 24	50	3573
Darrow—		
Humble, Gumble 14	*	7017
Jennings—		
Glassel & Glassel, Trushell 5	530	7250
Lake Barre—		
Texas Co., L. L. E. Lake Barre 16	*	4173
Sorrento—		
Pan American, United Lands 13	*	1712
Welsh—		
Stanolind-Humble, Pousson 1, 28-9s-5w	*	7020
West Hackberry—		
Superior, Benson-Vincent 3	492	6660
Jefferson Parish—		
Julius Szodomka, Carroll 1, 125-12s-11e	*	5230

*Failures; †Junked; ¶Million cu. ft. gas

Although most of the recent leasing activity in North Louisiana in the last month has been confined to the Shreveport vicinity, some wildcat leasing still goes on elsewhere. Shell Petroleum Corporation, which recently did extensive geophysical work around the flanks of the shallow Bellevue structure in Bossier Parish, highest geological point on the Sabine Uplift, and has taken considerable leases in that area, continues to lease there having recently added approximately 2000 acres to its holdings in township 19 north, range 11 west, Bossier Parish.

Near the old Richland gas field, Richland Parish, Guif Refining Company recently did considerable gravimeter work and has leased approximately 3000 acres additional in that general area. Around Sections 9, 16 and 20-16-15, Caddo Parish, five miles southeast of Greenwood, J. B. Jameson has recently leased over 1000 acres and other leases in the same area are being secured by B. J. Cole. Mid-States Oil Corporation entered the Sugar Creek field, Claiborne Parish, with leasing of S½ NE 25-20n-6w. Union Producing Company has leased several hundred acres recently in Rapides Parish, central Louisiana, around Section 11-1s-2w. In the Shongaloo district, Webster Parish, where in Section 32-23n-9w, it recently completed that field's first Lower Marine well, a gas-distillate producer, Magnolia Petroleum Company continues to add to its holdings substantially in township 23 north, ranges 9 and 10 west. In Webster Parish near Yellow Pine, around Section 29-18n-9w, Sibley-Sabine Corpo-

ration is completing a block for a proposed Glen Rose or deeper test.

Two and one-half miles southwest of nearest production in a recently opened south offshoot of the old shallow Zwolle chalk rock field, Sabine Parish, Major Oil Company's Loring Oil Company 1, SE NW 21-7n-13w, showed for a probable producer in the chalk at 2330 feet. The new offshoot at Zwolle in the chalk is producing approximately 3200 barrels of oil daily at present.

Two and one-half miles northwest of the lone Paluxy sand producer completed several months ago at 4200 feet in Section 23-7n-14w, Zwolle Syndicate's Mansfield Hardwood 1, NE NE 8-7n-14w, had set producing string of casing after a showing in the Paluxy. Total depth is 4325 feet. A northwest offset to the discovery Paluxy sand well at Blue Lake is being rigged by A. B. House of Crowley, Louisiana, at Sabine Lumber Company 1, NW NW 23-7n-14w. East and south of the discovery wells, tests have failed to produce in the Paluxy.

Four miles north of production in the Crichton offshoot of the old shallow Bull Bayou field, Red River Parish, James M. Forgotson has assembled a block and made location for J. G. Marston 1, NW SE SE 30-14n-10w.

NORTH LOUISIANA Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Bossier (Bellevue)—		
Premier Invest. Co., Connell 4, 15-19-11	20	312
R. E. Wyche 52, 14-19-11	25	435
Sloan et al, B. A. Sherrill 1, 12-19-12	*	785
Caddo (Pine Island)—		
C. G. Gibbins, State Lev. Bd. A-1, 17-21-16	40	1029
Midfield Oil Co., Muslow 6, 6-20-5	40	1660
Caldwell (Wildcat)—		
Zeigen et al, La. Central 14, 20-14n-3e	*	1775
Claiborne (Lisbon)—		
W. H. North, Lowery 1, 14-20-5	*	5317
Texas-Canadian, Lowery B-2, 14-20-5	1440	5320
Grant (Urania)—		
Rogers Prod. Co., Holmes A-3, 17-19n-3e	40	1602
La Salle (Urania)—		
Placid Oil Co., La. Central 6, 20-10-4e	*	1851
Morehouse (Monroe)—		
Southern Carbon Co., Tensas Delta 22, 3-21-4e	¶3½	2190
Union Prod. Co., Crossett 59	¶8¾	2234
Tensas Delta 22, 3-21-4e	¶3½	2190
Natchitoches (Wildcat)—		
Roy A. Rains et al, Prudential 1, 22-10-9	*	1250
Sabine (Zwolle)—		
Hunter Co., Bowman-Hicks 6, 12-7-13	750	2490
Richards & Holloway, J. E. Bauer 1, 7-7-12	*	2375
Union (Monroe)—		
Union Prod. Co., Fee 103 Well 1, 19-21-4e	¶9½	2165
Webster (Cotton Valley)—		
Magnolia, Cox 4, 23-21-10	*	5819

*Failures; †Junked; ¶Million cu. ft. gas

Arkansas oil and gas tax take is big increase this year

Arkansas collected $248,066.67 in severance taxes on oil and natural gas production from January 1 to August 1, 1938, compared to $129,000.52 collected during the first seven months of 1937, E. R. Richardson, supervisor of the severance tax division of the Arkansas Revenue Department, reported last week.

Arkansas Fields

Test east of Magnolia discovery checking low

El Dorado, Ark.—Limits of the new Permian lime oil field at Magnolia appeared to have been defined to the east last week when Petroleum Finance Corporation of Texas' (Leon Russ and associates) Baker 1, SW NW 13-17-20, checked 67 feet lower than the discovery well on tentative identification of the anhydrite, and was coring for the Permian lime at 7595 feet, almost 100 feet below where the lime producing zone of the discovery well had been expected. The discovery well is Magnolia's only producer at present.

Two tests at Village, in Township 17, Range 19, on the west and southwest sides of the discovery well there, have shown salt water although one was successfully completed in the Permian lime but the other continues to test, with large amounts of salt water showing with the oil.

Three important wildcat locations were made last week in Arkansas. In Mississippi County, Benedum & Trees Oil Company made location for Winston Mack 1, SW NW SW 3-15-12. Carl B. King will drill a Permian lime wildcat test on a geophysical prospect in NE NE 23-18-15, Union County, and Joe Modisett has been awarded contract to drill Fohs Oil Company's geophysically located wildcat in NE NE 6-18-14, Union County.

Five miles south of Magnolia, Standard Oil Company of Louisiana has leased several hundred acres around Section 8-18-20, Columbia County. Farther south and just north of the Louisiana line, Magnolia Petroleum Company has leased 2500 acres around Section 10-20-20. Smitherman and associates continue to lease around Section 4-17-21 and Gulf Refining Company is leasing in Township 17, Ranges 21 and 22.

The cumulative total of production from the lower Marine (Jones sand) in the Schuler field, Union County, Arkansas to August 17 was 3,374,161 barrels, with a total pressure drop since discovery of this producing horizon of 500 pounds, the total barrels recovery per pound being 6748 barrels.

For the week ending August 26 the daily average from the 67 producing wells in the Jones sand was 20,780 barrels or a per-well average of 310 barrels. The Morgan sand (Travis Peak) at Schuler, the first production found there, has a daily average production for that week of 1490 barrels from 11 wells or a well average of 135 barrels. The Reynolds (Permian) lime at Schuler has a daily average of 1350 barrels from 5 wells or a per-well average of 270 barrels. This gives the field as a whole an average of 23,620 barrels from

ARKANSAS Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Union (Schuler)—		
Lion, Marcus 4, 18-18-17	300	7590
Phillips, Miller 1, 18-18-17	360	7614
H. P. Sewell 1, 7-18-17	360	7700

*Failures; †Junked; ¶Million cu. ft. gas

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PELCO TRADE MARK

Lake Charles—Houma—Converse
New Iberia—Rodessa—Monroe
Cotton Valley—Greggton
Houston

83 wells or a per-well average for the field of 284 barrels.

Of this production the runs being handled are divided among three pipe line companies as follows: Atlas Pipe Line Corporation, 32 percent; Root Petroleum Company, 30 percent; and Lion Oil Refining Company, 38 percent.

Start Alabama wildcat

A heavy-duty cable tool rig has been erected in southeastern Lawrence County, Alabama. It will be used for the drilling of Mid-Southern Petroleum Company et al's Rob Jacobs 1, SW SE 11-7-7, four miles southeast of Moulton.

The test will be of interest in that the northwest part of Alabama lies on the top of, and on the flanks of, the well-known Cincinnati Arch, on which many fields are located in Ohio, Kentucky, Indiana, and a portion of Tennessee. Coupled with this is the known existence of the Chester Series of the Mississippian, which have produced much oil in southern Illinois and western Kentucky. Further, the only well ever completed as a producer in Alabama, known as Goyer 1, drilled in 1891, and which produced for some time at the rate of 25 to 40 barrels daily from the Trenton lime at a depth of slightly over 1500 feet, is located on the southern flank of Mid-Southern Petroleum Company's block of 9000 acres. Excessive gas was reported at two levels above the oil in Goyer 1, and four wells drilled after abandonment of Goyer 1, failed to reach the oil sand due to the sand.

CALIFORNIA
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Athens-Rosecrans—		
Barnsdall, Trust 5	1157	7802
Long Beach—		
Apex Petroleum, No. 10	150	3058
Montebello—		
St. Helens Petroleum, Eggleston 2	2000	5710
Torrance—		
Falma Oil, No. 1	275	4980
Morton & Elder, Ritzer 1	500	4993
J. L. O'Donnell, No. 42	125	4988
Pacific Western, Marble 2	78	4980
Packard Petroleum, Lomita 6	350	4959
Sol Oil, No. 1	150	5230
Sonwell Oil, No. 4	75	4955
Star Petroleum, G&A 2	137	4982
Schatz 1	100	4980
Wilmington—		
Bankline, U. P. (LB) 12	460	2970
R. T. Colter, No. 6	225	3630
General Petroleum, Harbor Comm. (LB) 39	110	3010
Walter Hughes, No. 1	350	5680
O'Kane & Brain, Inc., "O" (LB) 1	172	2941
Union Pacific, UP (LB) 88	408	2844
Fruitvale—		
Pacific Oil & Gas, Guisti 3	225	2966
Kern Front—		
Kern Oil, No. 3-C	200	1988
Kern River—		
Helm & Smith, No. 6-A	85	670
Kettleman North Dome—		
K.N.D.A., No. 27-16Q	150	8442
Rio Bravo—		
General Petroleum, Wagner 1	2350	11510
Round Mountain—		
Honolulu Oil, No. 49	350	1804
Ten Section—		
Shell, KCL B-2	2493	8200
Rincon—		
G. C. M. O., No. C-7	150	3600
Willows—		
Ohio, Willard 1A	¶25	6014
Richfield—		
Alford Oil, Robertson 1	*	3595
Shell, Cuff 1	*	2189
Mount Poso—		
Federal Drilling, B. & G. Glide 3	*	2210
W. P. W. Petroleum, W.P.W. 5	*	1212
McKittrick—		
Par-Mer Oil, No. 1	*	3160

*Failures; †Junked; ¶Million cu. ft. gas

California Fields

Derrick skidded two miles for Ten Section northwest test. Wildcat south of Round Mountain expects Vedder strike.

Los Angeles.—Shell Oil Company has just completed a record skid job for KCL B-83-25 that will be drilled as the furthest northwest project, Section 25-30-25, in the Ten Section field, Kern County. The derrick that was skidded two miles was used at the company's KCL B-2-32 that came in for 2400 barrels of oil per day from 8200 feet.

KCL B-83-25 is adjacent to two other producing wells, nevertheless it may be classified as an extension test. The company has four strings of tools active in Ten Section field.

Completion of California Star Oil Company's O'Brien 1 for an initial yield of 900 barrels at 5325 feet is said to have established a new producing area south of the old Torrance field. O'Brien 1 came in through a 40/64-inch choke. The company's Lermans 1, north of Lomita Boulevard, is being prepared for completion.

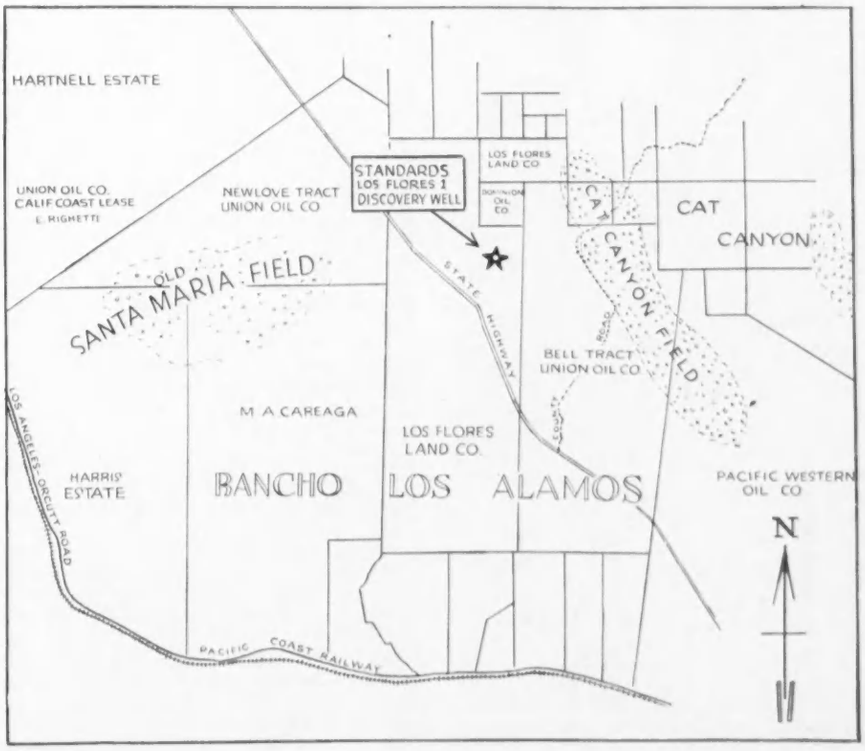
Ring Oil Company recently acquired 23 acres east of O'Brien 1 and has staked location for Hawkins 1. Inglewood Gasoline Company and Standard Gasoline Company are surveying for gas production in the D. & B. area south of Lomita with the expectation of laying a gathering system from nearby plants. General Petroleum Corporation's Poggi 9 is down to 5450 feet with the probability that a production test will be under way this week.

New interest is being manifested in Tide Water Associated Oil Company's Porter 1 wildcat test in Section 27-3-16, near San Fernando, as it is down to around 3900 feet with 9⅝-inch casing landed to 3620 feet. During a production test it swabbed a little oil and based on this showing Standard Oil Company and Tide Water are understood to be acquiring additional leases.

Union Oil Company completed KCL 4-34 at Rio Bravo for a flow of 4150 barrels of 34.2 gravity oil per day along with 2,850,000 cubic feet of gas from 11,510 feet with 7-inch casing landed to 11,315 feet.

Attention again is focused on Brown-Saffold Drilling Company's semi-wildcat in Section 32-28-29, south of Round Mountain, where it is endeavoring to develop a separate fold. This project last week had penetrated what was believed to be the bottom of the Jewett zone below 2180 feet and was coring ahead with the expectation of tapping the productive Vedder.

The star on the map shows location of Standard Oil Company of California's Las Flores 1, a recent Santa Barbara County wildcat strike that may change the complection of wildcatting on the floor of San Joaquin Valley. While many of the valley wildcats have had Monterrey oil as the objective, there is a swing in geological opinion to the theory that Las Flores 1 is producing from Sisquoc at 6440 feet, thus calling for reclassification of producing horizons at Cat Canyon and Bicknell fields. The discovery is pumping 880 barrels of 14.9 gravity oil.



Eastern States

New Kentucky pool discovery has 300 barrels oil daily. Initiate large scale project in Oil City-Titusville area.

Pittsburgh. — Plymouth Oil Company's Calhoun 1 opened a new pool near Hambleton ferry, in Daviess County, Kentucky, with production from the Cunningham sand, found between the Bethel and McClosky formations. It initialed at 300 barrels daily and late last week was producing at the rate of 125 barrels daily, and furnishes the first Cunningham sand production in this area. The well is on a 464-acre lease in which the Benedum-Trees Oil Company and the Hiawatha Oil & Gas Company are also interested.

A two-mile northerly extension to the Birk City field of Henderson and Daviess counties failed when Miller & Shiarella's Rash 1 found water in the McClosky at 1900 feet. It was in Henderson County.

Aetna Oil Service Company's Priest 1, in Henderson County, was started last week with cable tools and will test all possible producing sands on the way to the McClosky, including the Jett, Jones, Bethel and Cunningham. These formations indicated favorable showings in Birk City wells drilled with rotary outfits and the Aetna Company's test will be closely watched for more definite information on the upper sands.

Carter Oil Company's Boswell 4, west of the Green River on the Henderson County side of the Birk City pool, was completed last week at 1915 feet. Its initial McClosky sand production was 326 barrels of oil and 6 barrels of water during a 24-hour period.

Announcement of two outpost wells on the Henderson County side of the new field was made last week. Kenneth Nix and Henderson Hallman will drill on a 204-acre tract near the Mason's Ferry landing, and M. F. Coats and Kenneth Nix will start a test immediately on a 110 acre tract near Hebbardsville.

Other operations in the Birk City field included: Major Oil Company's Saunders 1, flowing at the rate of 1000 barrels daily; the same company's H. Nelson 1 started at 250 barrels a day, and its G. Harrington 1 was producing 50 barrels a day on pump, all in Daviess County. In Henderson County, R. N. Compton's L. W. Brown et al 1 found the McClosky at 1820 feet and was running casing; Aetna Oil Service Company's Morrison 1 produced 80 barrels a day after acidization, and the company was setting surface pipe at No. 2; J. D. Speary et al's L. Hagan 1 was changing from a rotary to cable tools for drilling into the McClosky at 1865 feet.

In Posey County, Indiana, Sun Oil Company's W. W. Gray 1, Section 29-8s-14w, Point Township, was being prepared for treatment with 4000 gallons of acid at 2700 feet. The formation is the McClosky.

L. Z. Houze Glass Company's P. Dunham 1, on Chestnut Ridge, near the Wymps Gap school house, Fayette County, Pennsylvania, stopped drilling last week at 6682 feet to run 7-inch casing. Bottom is believed near the top of the Corniferous lime, the Onondaga having been topped at 6628 feet. The wildcat is to be drilled into the Oriskany sand, lying directly below the Corniferous, where a gas well is expected. The company has 2000 acres leased in this area, and the structure is 2 miles wide extending south towards Charleston, West Virginia.

Leases on 1087 acres in South Union and Georges Townships, Fayette County, Pennsylvania, were transferred last week from John L. Barclay to the Carnegie Natural Gas Company. They run for a 10-year period, and no announcement has been made by the Carnegie Company for development.

C. K. Anderson, Jr., Pittsburgh operator, is undertaking the first large-scale development program to be instituted in the Oil City-Titusville district of Pennsylvania in more than a year on his 850-acre tract recently acquired from Earp, Kelley and Selden interests. Included in the property were 72 wells, of which 12 were converted into intake wells. A contract has been let for drilling 20 pressure wells, which will permit return of present intake wells to producing wells. The spacing of wells on the property lend themselves to development in comparatively regular patterns, with intake wells usually serving six producing wells. The development program, being carried on by F. Arthur Johnson, Oil City geologist and petroleum engineer, includes enlargement of the compressor plant to include three units in place of the present 6½ x 13 x 14 compressor equipped with an 85-horsepower motor. D. C. Kerr, Titusville drilling contractor, is drilling the intake wells. Production is from the First and Third sands.

One small gas well was completed in the New York-Pennsylvania deep sand gas area last week, and a wildcat test was abandoned when it failed to find the Oriskany sand. G. L. Cabot's Gibson 1, Woodhull Township, Steuben County, New York, had the Oriskany between 3602 and 3630 feet, was bottomed 1 foot below the formation, and gauged 700,000 cubic feet per day. In Potter County, on the Pennsylvania side, Williamsport Oil & Gas Company's U. B. Russel 1, Sharon Township, was bottomed at 5297 feet. The Onondaga was topped at 5171 feet.

Completed operations in the Eastern States gained in West Virginia and Kentucky, remained constant in Pennsylvania and dropped in Ohio last week. The net gain was 4 wells. West Virginia advanced from 12 to 16, which included 3 oil wells averaging 6 barrels initial production, 12 gas wells and 1 dry hole. Kentucky gained 1 from the previous week's 16, the past week's lot including 9 oil wells averaging 18 barrels initial, 2 gas wells, 1 pressure well and 5 dry holes. Pennsylvania

EASTERN FIELDS

Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
OHIO		
Athens County—		
Ohio F. G. Co., Sunday Creek 164..	¶.33	1191
Speary O&G Co., Bank of Athens 1	*	688
Coshocton County—		
Preston Oil Co., Speckman 1.....	*	3360
Guernsey County—		
M. J. Purdy, Colburn 1	¶.20	1512
Holmes County—		
Bell Bros., Boyd 1.....	*	825
Knox County—		
Ohio F. G. Co., Lower 1.....	¶.10	2960
Ashcraft 1	*	2840
Licking County—		
Rutledge & Mosholder, Moran 5...	150	3071
Fullerton 1	¶	830
Hazlett et al, Gutridge 1.....	60	3125
Kindtz-Hulze et al, Booth 1.....	50	3062
Medina County—		
Preston Oil Co., Severcool 6.....	5	299
Severcool 7	20	390
Meigs County—		
Harry Smith, Hysell 1.....	¶.25	933
Monroe County—		
Gerber & Myers, Ball 1.....	*	1871
Perry County—		
C. Z. Ruth, Nuzum 21.....	5	1086
Putnam County—		
Houbler Bros. et al, Heighley 1....	*	1381
Seneca County—		
Spohm et al, Davidson 1.....	*	1631
Washington County—		
Coffman Oil Co., Coffman .9.....	5	837
Depuy Bros., Hendershot 3.....	¶.25	1317
C. A. Peavy, Jones 1.....	*	1329
WEST VIRGINIA		
Cabel County—		
DeJarnette Gas Co., DeJarnette 1..	¶.16	3123
Calhoun County—		
O. D. Jones, Parsons 2.....|	¶1.00	2105
Clay County—		
Virginian G. & O. Corp., Brown et al 47	10	2016
Fayette County—		
Godfrey L. Cabot, Kanawha Gauley 11	*	2503
Gilmer County—		
C. F. Wilson, Campbell 1	¶.50	1651
Hope Nat. Gas Co., Bennett 7809...	¶.08	2228
Phillips, Fetty 6.....	¶.04	2296
Harrison County—		
Washington Gas Co., Riley 1.....	¶.25	3470
Jackson County—		
United Carbon Co., Perkins 3.....|	¶6.10	5238
Ritchie County—		
Davis & Deem, Foster 1.....	8	1714
Diamond O. & G. Co., Wright 1....	1	2480
Moats, Barker et al, Moats 1.....	¶.25	2159
Upshur County—		
French Creek O. & G. Co., Sees 1...	¶	3926
Wetzel County—		
Hazlett & Conley, Mason 3.....|	¶1.00	535
Harrison-Ritchie O. & G. Co., Huff 1	¶.10	2670
Wirt County—		
G. D. Roberts, Hall Hrs. 7.....	¶.75	1780
KENTUCKY		
Butler County—		
Barnsdall Oil Co., Harper 1.....	10	178
Evans et al, Harper 4.....	5	178
Gardner 1	*	171
Trader et al, Harper 1.....	*	375
Daviess County—		
Major Oil Co., Harrington 1.....	70	....
Floyd County—		
Fred Williams, Stanley Hrs. 1.....|	¶3.00	2560
Grayson County—		
Smith et al, Sharver 1.....	*	498
Lee County—		
Burnett & Prewitt, Day Timber & Coal 6	10	1200
Martin County—		
Inland Gas Corp., Layne Hrs. 201..	40	1550
Diedrich, Pauley 6.....	10	1450
Virginia G. & O. Co., V-1266.....	*	1578
Ohio County—		
Nollem O. & G. Co., Crowe 8.....	10	649
Leeper Oil Co., McKinley 10.....	5	720
Mohawk Drlg. Co., Lanham Hrs. 1.	5	....
Petroleum Expl. Co., Royal 3.....	*	....
Rex Pyramid Oil Co., Ambrose 18..	P	601
Pike County—		
United Carbon Co., James et al 743.	¶.18	2703

("P" designates pressure well.)

PENNSYLVANIA		
Potter County—		
Williamsport O&G Co., Russell 1..	*	5297
Washington County—		
Harry Williams, Swart 1.....	¶.30	1113
NEW YORK		
Steuben County—		
G. L. Cabot, Inc., Gibson 1.....	¶.70	3631

*Failures; †Junked; ¶Million cu. ft. gas.

continued with 2, comprised of 1 gas well and 1 dry hole. Ohio dropped 1 to 21, the week's completions including 7 oil wells averaging 42 barrels daily initial, 6 gas wells and 8 dry holes.

Carter starts buying crude in Illinois fields

[*Continued from page 54*]

the basis of two wells to 40 acres, these to be located in the center of the diagonal 10-acre tracts in the forty. This practice alone will conserve the gas energy for larger production, prevent the escape of gas from solution, the most important agency in producing oil, and through latitude of two wells to 40 acres, located as here indicated, we will be able to put into operation other methods of larger recovery. In the second place, by long experience, we have learned that where the wells in an oil pool are produced at their efficient rate, the eventual recovery very substantially will be larger. This practice we mean to put in force in the Loudon field in both producing and taking oil from our own properties. To the extent that our development of the field has proceeded our engineers are of the opinion that the efficient rate of production from a 40-acre tract is 40 barrels per day when one well only has been drilled on the tract and 80 barrels per day from the forty when two or more wells have been drilled on the forty. By thus taking 80 barrels from the two or more wells on the forty, there is latitude in taking more from one well than another within the 80-barrel limitation if a particular well will not produce its 40 barrels or if one of the wells is producing at a low gas/oil ratio while the other or others are producing at high gas/oil ratios. The third method of enlarging recovery we mean to put into effect just as soon as the necessary equipment is installed is to maintain the pressure of the producing formation by injecting residue gas into the formation."

Limits Purchases

The conditions under which crude oil will be bought are identical with conditions under which the concern will produce its own properties and summed up are:

With one well to 40 acres, to produce or buy 40 barrels per day; where two wells are on 40 acres, to produce or buy 80 barrels per day; where more than two wells are on 40 acres, to produce or buy 80 barrels from the tract.

A bid for other producers to work for the maintenance of gas pressure in the field was in the final paragraph of the announcement:

"Owing to the low gas volume of the field, we regard the maintenance of pressure supremely important for larger recovery. We will assist any operator who may sell his production to us in maintaining pressure, the details of the particular arrangement to be worked out between us."

Entry of the Carter Oil Company as a purchaser in the Loudon field followed completion of a field gathering system by Oklahoma Pipe Line Company and 15 miles of trunk line from the field to the Brownstone station on the trunk line system of Illinois Pipe Line Company.

Illinois Developments

500-barrel well opens field 13 miles from other fields.

Wayne County well sets state record with 4000-bbl. flow.

Olney, Ill.—Sloan & Allen's P. Walker 1, Section 16-3s-9e, Leech Township, Wayne County, started flowing last week at the rate of 500 barrels daily, opening a new field 13 miles from production.

A core from Arab Petroleum Company's F. Doemer 1, Section 12-7s-8e, Indian Creek Township, White County, was being analyzed to determine whether the McClosky lime saturation encountered by the wildcat was sufficient to make it a commercial well. The formation was topped at 3200 feet. Two previous tests in this county encountered oil showings in the McClosky, but neither was developed into a producing well.

Carter Oil Company's S. C. Tennery 1 recovered a 32-foot Stein sand saturation, indicating a two-mile northeast extension to the Beecher City field of Fayette County. The well is 1 mile southwest of Beecher City.

An additional extension was given to the rapidly growing Lake Centralia field of Marion County by Max Conrey et al's West Nation School 1, Section 33-2n-2e, ¾-mile southeast of production. It is 2 miles north of Mammoth Producers & Refiners' Bachman 1, Section 9-1n-2e, most easterly completion, indicating a large area between the two wells may be productive. The outpost has an estimated initial production of between 500 and 600 barrels daily.

Carpenter & Goldberg's E. E. Holsapple 1, Section 25-1n-1e, Odin Township, ¼-mile northwest of C. Shephard et al's C. Greer 1, which a week ago provided a 1¾-mile northwest extension to the Lake Centralia field, was abandoned as dry at 2018 feet.

Initial production records for Illinois fell with completion last week of H. H. Weinert, Incorporated's H. Morlan 2, Section 33-2s-7e, Big Mound Township, Wayne County, started at more than 4000 barrels a day. Bottom was at 3330 feet, in the McClosky. This pool, southwest of Fairfield, has become one of the more important areas in the Basin. The Texas Company's Ray 1, Section 33-2s-7e, at 3313 feet, and the Weinert Company's R. C. Twist 3, same section, at 3350 feet, were both swabbing in. Sloan et al's Walker 1, a wildcat in Section 16-3s-9e, was testing after drilling plug to saturation. Bottom was at 3428 feet.

Three completions were indicated in the North Olney field of Richland County, bringing promising producing wells in this area to 17. Pyramid Oil Company's G. Sly 3, Section 22-4n-10e, was drilling plug to 8 feet of McClosky pay between 3017 and 3025 feet. The Texas Company's J. Winters 2, Section 27-4n-10e, recovered 8 feet of McClosky saturation below 3070 feet, and the same company's B. Doty 1, Section 27-4n-10e, was coring into a saturated McClosky topped at 3090 feet. One mile east of production in this field, Lough et al's Mrs. F. Schilt 1, Section 25-4n-10e, was starting to drill below surface pipe with rotary rig.

Two North Olney field wells reported last week as promising producers were successfully completed. Sylvester et al's Mrs. M. Osborne 1, Section 26-4n-10e, initialed 400 barrels daily, and J. V. Wicklund Development Company's R. Sager 1, Section 22-4n-10e, flowed 35 barrels an hour until available tankage was filled. Both wells are outposts, the first extending the field to the south and the second to the northwest.

A closely watched wildcat is Pure Oil Company's F. L. Wakefield 1, Section 26-4n-9e, drilling last week at 2150 feet. It is in northeast Noble Township, near the Denver Township line, northern Richland County.

Thompson Drilling Company's J. Musial 1, Section 19-3s-1w, DuBois Township, Washington County, which opened a new field when production was taken from the Stein sand last month, drilled on to 3537 feet in search of heavier production in the deeper Bethel sand and was being plugged back. It had been drilled to 3537 feet. Townsend & Wilhelmia's Kaser 1, 3½ miles south of Nashville, in this county, was abandoned at 1445 feet after testing the Stein and Benoist sands. A slight saturation was found in the Benoist, but not sufficient to make a well.

ILLINOIS
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Bond County—		
Leavitt & Holland, Briggs 1	*	1337
Clay County—		
Pure, Ullom 1	829	3050
Bunn 3	775	3070
Tetrick 5A	700	3030
Moseley 4A	398	3041
Bunn 2B	313	3046
Kingwood Oil Co., Cash 1	*	3100
Clinton County—		
Quinsburry Drlg. Co., Burrough 1	180	1390
Newton & Ward, Gross 4	175	983
Iroquois O. & G. Co., Winte 1	200	1382
Robert Bros., Hozar 1	165	1381
Rogers & Lacy, Wright 1	150	1380
Ray et al, Langenfetdt 1	140	1385
Robinson et al, Cavanaugh 1	100	1388
Shell, Brough-Hanseman 1	100	1330
Samedan Oil Corp., Buehler 2	100	1332
Huddleston & Given, Vickers 1	75	1375
Shell & Adams O. & G. Co., Lippert-Felton 2	66	1356
Kapp, Stanford 1	85	1332
American Seismograph Co., Branan 1	40	1389
G. C. Rockwood, Horstman 1	40	1387
Taylor Drlg. Co., Meyers 1	*	1620
Fayette County—		
Carter, Lilly 1	638	1582
Kingwood-Duncan, Yolton 2	432	1517
Jefferson County—		
Carter, Foster 1	360	1965
Marion County—		
Oexner, Washington School 1	65	1386
Lane & Edwards, Bailey 1	*	1735
Harris & Broddus, Welch 1	*	2194
Montgomery County—		
Baker et al, Yowell 1	*	821
Richland County—		
Texas, Winters 1	225	3108
Pure, McFarlin et al 2	145	2978
Mammoth P. & R., Bell 2	*	3112
St. Clair County—		
Group Oil Co., Buss 1	*	1012
Wayne County—		
H. H. Weinert, Morlan 1	600	3323

*Failures; †Junked; ¶Million cu. ft. gas

New Mexico Fields

Vacuum outpost tests yield flow normal for field.

Texas Pacific orders resumption of Lynn drilling.

Hobbs, N. M.—Two outpost completions in the east extension sector of the Vacuum field yielded natural flow comparable with the average for the field. Competitive drilling will be launched in the new area, and the field is now certain to maintain its position for a period of months as the most active drilling center. The field was credited with 4 of the 8 new tests assigned Lea County the past week.

Drilling & Exploration Company Inc.'s State-Amerada 1, C SW SW 22-17s-35e, advanced production ½ mile east with an average flow of 23 barrels of oil per hour for 6 hours through 1-inch tubing choke from lime at 4634 feet, or 684 feet sub-sea. Phillips Petroleum Company's State-Santa Fe 7, C SE SW 27-17s-35e, located 1¼ miles southeast of its original east outpost, averaged 41½ barrels of oil hourly for 6 hours through 1-inch choke, with the hole bottomed at 4610 feet, or 669 feet sub-sea. Magnolia Petroleum Company's State 1-L, C SE SW 21-17s-35e, offsetting the above company's first outpost producer, did not encounter as favorable porosity in the lime section, and was drilled to 4660 feet, or 692 feet below sea level. The well flowed 100 barrels oil natural in 13 hours through ¾-inch tubing choke, and rig was skidded one location west to drill State 2-L, which will require 3 normal offsets and additional progressive offsets.

Magnolia Petroleum Company is also rigging up to drill State-Bridges 16, C NW NE 25-17s-34e. The company is using its own heavy rotaries, and has scheduled an ambitious drilling program on its State-Bridges 5281-acre discovery permit in addition to its spread of smaller State permits. The Texas Company announced two new projects for the south portion of the Vacuum structure, involving State 7-O, C SE SE 36-17s-34e, and State 8-O, C SW SW 36-17s-34e, drilling at 840 feet and 390 feet, respectively.

Helmerich & Payne and Continental Oil Company's State 1-G-36, C NW SW 36-17s-34e, 2 miles southeast of nearest production in the Vacuum area, was drilling at 4150 feet, with an elevation of 3903 feet. Its structural position is not considered favorable for production. Continental Oil Company's State 1-I-7, NE NW NE 7-17s-34e, about ½ mile southwest of a small wildcat producer completed earlier this year on a northwest trend from the Vacuum field, was drilling at 4640 feet, with an elevation of 4130 feet. Production is due within the next 50 feet. The test is on a 40-acre site that is a part of a 3500-acre lease that will expire unless production is developed by mid-September.

Resumption of development of the oil discovery site of the Lynn field has been authorized by Texas Pacific Coal & Oil Company in making location for State 6-A, Account 1, SW SE NW 21-23s-36e. It is two locations east of the company's first oil well, which was completed in March, 1930, and currently producing 45 barrels daily, according to the proration schedule.

Continental Oil Company et al's Britt 2-B-15, C W½ SW NW 15-20s-37e, situated on the east flank of the Monument field, flowed 20 barrels of oil the first hour and 26 barrels the second hour on gas lift, and is slated for completion without nitro shot or acid. The test was cored to 3913 feet, or 356 feet sub-sea, and is below the normal water level of the field.

Jas. Mascho et al's Cloyd-Conoco 2, southwestern Lea County Delaware lime prospect, was drilling salt beds at 4450 feet. Tide Water Associated Oil Company's State 1-L, wildcat in the Tatum area, Lea County, was drilling hard lime at 5050 feet. Ohio Oil Company has made location for M. E. Wills 1, 1980 feet from west and 660 feet from north lines of 35-26s-37e, a short section, in southeastern Lea County and on a northwest strike from the Keystone field, Winkler County, Texas.

Linking of the Penrose and Skelly fields, Lea County, may hinge on the outcome of Skelly Oil Company's A. B. Baker 1-B, C SW NW 10-22s-37e, a new location. An interval of less than a mile separates the two areas. In the Mattix field, Walter Donnelly et al obtained a 120-acre farm-out from Shell Petroleum Corporation, and was drilling below 1200 feet on B. F. Davis-Shell 1, C SE SW 33-23s-37e, to comply with development terms.

NEW MEXICO Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Eddy County—		
Welch et al, Lewis 1, se sw se 5-16s-28e	*	3139
Lea County (Hardy)—		
Two States et al, Hill-Gulf 1-B, lot 3, 5-21s-37e	250	3763
Lea County (Hobbs)—		
Continental et al, Britt 2-B-15, c w½ sw nw 15-20s-37e	500	3913
Lea County (Penrose)—		
Cities Service et al, Brunson 3, c sw se 4-22s-37e	450	3740
Lea County (Vacuum)—		
Magnolia, State 1-L, c se sw 21-17s-35e	200	4660
Ohio, State-McCallister 2, c ne sw 25-17s-34e	1000	4700
Phillips, State-Santa Fe 7, c se sw 27-17s-35e	1500	4610
Republic, State 2, c sw sw 32-17s-35e	1500	4527
Anderson County (Cayuga)—		
Phil-Top Oil Co., G. W. Ware-Tidal 1 (140-ac)	900	4071
Tide Water Associated-Seaboard, Goode 7 (133.2-ac)	500	4023
Franklin County (Talco)—		
Byrd & Frost, Evans 3 (315-ac)	320	4288
Titus County (Talco)—		
Humble, Galt 9 (80-ac)	342	4267
Navarro County—		
Howze Oil Co. & Cochran, Jackson 1	*	3215

*Failures; †Junked; ¶Million cu. ft. gas

Rocky Mountain Fields

Cunningham to test Horne and Flattop structures.

Keisling's wildcat extends Osage two miles west.

Casper, Wyo.—Cunningham Oil Company which recently tapped the Oil Springs structure, Carbon County, for a new Wyoming gas field, this week announced two wildcat tests in the Laramie Basin area of south central Wyoming. The company has let rotary contract and is moving in for Union Pacific 1, NW SE NE 21-22n-78w, on the Horne structure, Carbon County. The well will drill to around 2700 feet to test the Sundance formation. Elevation is 6637 feet.

Horne structure is located 10 miles south of Oil Springs field, where Cunningham completed a 55,000,000 cubic foot gasser. It is an east-west trending anticline along the St. Mary's line of folding, and is separated from the Allen Lake gas field, just to the west, by a sharp syncline. Geology on the structure was worked out by T. S. Harrison of Denver.

Osage Lengthened

Extension to the Osage field, two miles west came this week with George Keisling's Fee 1, NW NE NE 35-46n-6w, completing for 175 barrels daily from 34 feet of Newcastle sand (Muddy) at 1928-1956 feet. Extension of the field is expected to further revive activity in the shallow drilling area of Weston County, eastern Wyoming. Two weeks ago in the shallow northern sector of the field Bock & Johnson completed a 45-barrel well 197-215 feet in the Coffee Grounds sand, a sand found about 150 feet below the Newcastle.

Losing Returns

General Petroleum Corporation's State 1, NW NE SE 16-35n-77w, second well on the Cole Creek structure, 13 miles northeast of Casper, is drilling at 3100 feet in the Mesa Verde shales of the Upper Cretaceous, and is having difficulty maintaining circulation. The test is a mile north of the discovery, Government 1, which is flowing 30 barrels of oil a day by heads from the Lakota formation at 8013 feet. The second well is being keenly watched as its results will largely pace a wildcatting program by Rocky Mountain operators on a basinward trend into the large Powder River Basin embracing the northeastern quarter of the state.

Results in Stanolind Oil & Gas Company's fifth completion in developing a black oil reserve in the Tensleep sand of the Salt Creek field, Natrona Coun-

ty, Wyoming, was disappointing. The well, Wyoming-Associated Oil Company T-P, CSE SW 26-40n-79w, flowed 163 barrels of fluid, 58 percent oil and 42 percent water, from perforations in the 7-inch casing between 3892-4046 feet. Flow is through a 3/32-inch choke on the 2-inch tubing. Stanolind's Midwest Oil Company T-P 8, CNW SW 35-40n-79w, is drilling at 2348 feet.

Drilling with slim hole rotary, Sinclair-Wyoming Oil Company's Lost Soldier 79, SE NE NE 10-26n-90w, Sweetwater County, is making hole at 916 feet. In the Mahoney Dome gas field, Carbon County, Sinclair's test for oil to the Tensleep formation, Mahoney 3, CSE NW 34-26n-88w, is drilling at 3604 feet.

Two active wells are underway in the Lance Creek field, while four offset wells, not yet started, are called for completion within the next 90 days. Ohio Oil Company's Elizabeth Lamb 11 Account 2, SW SE SE 5-35n-65w, is drilling at 2034 feet. Continental Oil Company's Apex 3-OPC-3, NW NE NW 34-36n-65w, is a near completion, waiting on cement to set around the 7-inch production casing set at 5315 feet with total depth at 5353 feet. The well cored into Leo saturation at 5312 feet.

Selegna Oil Corporation is rigging up rotary to resume drilling and deepening into the Basal Sundance formation in Union Pacific 1, SW SW 11-20n-104w, extension test to the North Baxter Basin field, Sweetwater County, southwestern Wyoming. Depth is 4996 feet.

A deep test of the Little Polecat gas structure, Park County, northern Wyoming, Ohio Oil Company's Trans-Ark 7, CSL SW SW 30-57n-98w, topped the red beds at 6225 feet and is drilling ahead at 6364 feet, projected for the Tensleep formation. An old gas producer from the Frontier formation, the well had water in its first objective, the Dakota series.

In the old Lamb Anticline gas field, Big Horn County, Wyoming, Prescott & Mileski's Government 1, NE NW SW 1-51n-93w, appears that it may open up shallow light oil production in the lower Frontier series, and is waiting on cement to set around 8¼-inch casing at 850 feet preparatory to drilling in and testing an oil show. Lamb Anticline formerly supplied the town of Greybull with gas from the upper sands in the Frontier.

In the Shawnee field, Converse County, Blue Ridge Oil Company is moving in machine for a test in the SWc NW SE 29-32n-69w, a first report. Jack Decker et al's Simonson 1, NW NE SE 16-32n-69w, an outpost more than 2 miles east of the Shawnee development, is at critical depth, running 8¼-inch casing to 640 feet.

MOUNTAIN STATES
Completions

MONTANA

Company, Well and Location	Init. Prod. Bbls.	Depth
Glacier County (Cut Bank Field)—		
Glacier Prod. Co., State 3-16, nw ne nw 16-33n-5w	140	2905
Santa Rita O&G Co., State 1, nw nw sw 36-34n-6w	•	3000
Texas Co., Curran 2, cnw ne 8-32n-5w	15	2987

•Failures; †Junked; ‡Million cu. ft. gas

Michigan Fields

Freeman Township area indicated to extend 3 to 4 miles.

Failures tend to slow drilling activity at Diamond Springs.

Mt. Pleasant, Mich. — Interest of Michigan operators, centered in the southwestern part of the state for nearly two months, swung back to North Central Michigan this week as Pure Oil Company established a 1½-mile north extension to the discovery well in Freeman Township, Clare County. That company's Switzer 1, c S½ NW SW 27-19n-16w, Redding Township, on August 30 was under swab test with an indicated 30- to 50-barrel natural production from Monroe limestone. Monroe lime was checked at 3894 feet with first gas at 3895 feet. It showed 2790 feet of oil in 5-3/16-inch casing at 3902 feet. Deepened to 3903 feet samples indicated a slight salt content, and operators ordered a 2-foot plug back and a 2000-gallon acid treatment, slated for later in the week. While initial production on the test is considerably short of the discovery well, it has been accepted as confirmation of a major producing district. It was the first to complete since Higelmire Trustee-Van Horn 1, NE NW SW 3-18n-6w, Freeman Township, was completed on July 9 at 3894½ feet for 286 barrels natural. The discovery was acidized on August 11, increased to 1015 barrels, and now is flowing 810 barrels daily.

Structurally, Pure Oil Company's test is rated 1 foot higher on the Monroe than the discovery well. Allowance for differences in sea elevation places the Monroe top on the Pure well at a —2805 feet and the discovery at a —2806 feet.

What operators were regarding as equally significant this week for the Freeman-Redding district was checking of the base of the redrock on McClanahan Oil Company's Perkins 1, Section 15-18n-6w, 2 miles southeast of the discovery well, 8 feet higher than the discovery. Operators anticipate some thickening in the lower beds but feel the prospects are good for the productive area to reach a 3- to 4-mile north-south length.

McClanahan Oil Company's test, now cemented at 1745 feet, drilled through 16,900,000 cubic feet of natural gas at 1472-85 feet in Michigan Stray which has delayed reaching the Monroe lime oil objective. However, gas operators regard the Stray sand gas production encountered as probably opening a new gas pool whether oil in the lower horizons is developed or not. This well marked the third in the district, separated by about 2 miles north-south and east-west, to show gas in commercial flow.

Clare District Active

From an original 9-well start following the discovery, operations in the Clare district had jumped to 19 active wells this week, and with the Pure well making production the number of active starts should double within two weeks.

Socony-Vacuum Oil Company's Van Horn 1, north offset to the discovery, checked the Monroe top at 3885 feet and shut down for casing with drilling in due for September 4. Gulf Oil Corporation's Van Horn 1, east offset to the discovery, had reached 3770 feet on the same date, and due to be the third to test the objective horizon.

Sun Oil Company was making progress but had not completed cleaning out State B1, Section 9-15n-1w, Jerome Township, Midland County, deepest active oil test in the state, where a 5020-25 foot Sylvania sand oil show was under test when a shot was accidentally fired at 4062 feet last week. This test, a wildcat, originally was drilled to a 5069-foot water sand and then plugged back to 5039½ feet to test the saturation zone. A 40-quart shot was successfully placed but a second 20-quart shot shell stuck at 4062 feet and was exploded while being jounced with the bailer. Operators were confident of getting the hole cleaned up due to the fact that no casing was in the hole at the shot depth. Last string

Institute of Petroleum's Volume 3 is published

Volume 3 (covering 1937) of the Annual Reviews of the Institute of Petroleum, Aldine House, Bedford Street, Strand, London W. C. 2, recently published, comprises a series of 27 critical surveys written by experts in the various branches of the industry. Each survey is accompanied by a selected bibliography and enables the reader to obtain a clear outline of the year's progress in the following fields of petroleum technology: geology (general and regional), prospecting, drilling, production, transport, refining, cracking, testing and utilization. The various main products of petroleum—motor fuels—heavy oils—lubricants—and asphaltic bitumen receive separate and detailed treatment, while an interesting article on special products draws attention to the increasing use of petroleum products in the electrical industry and the part played by pyrolysis and polymerization in the development of new synthetic compounds.

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S. L. McCall and J. H. Fisher, trustees, left to right, who opened Van Buren County, with the shallowest gusher in Michigan, 1221 feet, and first well for the county. Well was rated at a 1100-barrel potential after averaging 52 barrels an hour on 3-hour test. Others in picture, left from Fisher, are E. O. Lucas, drilling contractor; C. H. Maynard, Oil Well Supply's Allegan store manager, and Forrest Smith of Mount Pleasant, Michigan, manager of Oil Well Supply Company

of pipe was set at 3679 feet with the charge firing in open hole.

A minimum 30-well drilling program was well underway in southwestern Michigan in the district of new shallow Traverse limestone strikes made two weeks ago. First completions, offsets, were due by the end of the week.

Fisher and McCall's Wiggins 1, Section 9-1s-14w, Bloomingdale Township, Van Buren County, 7 miles southwest of production in Allegan County, currently is rated as one of the best individual wells drilled this year in Michigan. It is producing from 1221 feet from 1 foot in the Traverse lime and has averaged 1400 barrels daily since completion on August 15. Sixteen wells are drilling in the immediate vicinity. Leasing has taken on active status from 10 to 15 miles southeast and northwest of the well. Town-lot drilling is anticipated in the village of Bloomingdale a mile south of the discovery. Naph-Sol Refining Company expected to complete a 4-inch line to the discovery from its Allegan system this week.

Ten drilling tests were active this week in the immediate area of Stewart-White's Oldebekking 1, Section 21-4n-14w, Overisel Township, Allegan County, which opened a new pool two weeks ago three miles northwest of the Diamond Springs pool. Simrall Pipe Line Corporation has started construction of a 6-mile line from railroad loading rack to this district.

Boom drilling in the Diamond Springs district showed its first signs of subsiding this week as failures on three sides appeared to about define the productive limits to an area of 350 to 400 acres. Close town-lot drilling and unrestricted production through 6-inch casing without tubing or back-pressure regulations generally is accepted as "too much" for the low gas/oil ratio and shallow lime district. Current wells are being placed on pumps immediately.

Failure loomed this week for C. W. Teater's Gray 1, Section 32-23n-5w, Enterprise Township, Missaukee County, a wildcat test, after drilling to 3890 feet. Dundee was checked at 3655 feet, reportedly low on structure, and Monroe top at 3835 feet. The same company's Tushingham 1, Section 26-16n-2w, Warren Township, Midland County, also a wildcat, five miles west of the Edenville Dundee pool, logged a gas show at 3790 feet and drilling was suspended for casing.

A damper on prospects for the Winn district, Isabella County, developed this week when the first two tests completed following the discovery were dry. Bell-Marks, who drilled Fox 1, Section 3-13n-5w, in April this year for a 40-barrel well at 3700 feet in Monroe lime, drilled the Moore 1, Section 8-13n-5w, three quarters of a mile southwest, dry. Farther southeast in Section 26-13n-5w, Rowmor Corporation is abandoning Weideman 1, as a Monroe lime failure.

Kramer, Norton and Carr announced location on Sharp 2, NW SW NW, Section 30-14n-8e, Akron Township, Tuscola County, first location since completion of Sharp 1 in May this year for a discovery Monroe lime producer. No. 2 is two locations south of the discovery.

Sharp 1 was bottomed at 3421 feet, with Monroe top at 2929 feet, and rated a 50-barrel natural production. The well currently is flowing 35 barrels.

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MICHIGAN
Completions

Company, Well and Location	Init. Prod. Bbls.	Depth
Allegan County—		
Columbia Oil Co., Siewald 3, se ne sw 29-4n-12w	*	1735
Cecil Runyan, Kubiac 2, ne ne nw 31-4n-12w	*	1599
Muskegon Dev. Co., Todd 1, nw se sw 24-2n-16w	*	1630
A. M. Henry, Honeysette 1, sw sw ne 27-1n-11w	*	1743
Tri-County, Paul 1, ne nw nw 1-3n-14w	*	1610
Gordon Oil Co., Scholten 3, nw nw ne 1-3n-14w	560	1468
Fortney Oil Co., Wessling 1, se nw ne 1-3n-14w	70	1459
Miller Bros., Wood 1, se ne sw 3-1n-12w	*	1640
Black Rock Oil Co.'s Scholten 2, ne se sw 36-4n-14w	250	1443
Dawn Dev. Co., Hardy 2, se nw 21-4n-13w	400	1613
Bridger Basin Oil Co., Lampen 2, sw sw sw 31-4n-13w	60	1479
Arenac County—		
R. B. Tamblyn, McFarlan 1, sw sw nw 34-20n-3e	*	2517
Clare County—		
American Prod. Co., Whiteside 1, c w½ 36-17n-4w	10	1320
Gladwin County—		
Pyramid Oil Co., Lake B1, nw sw se 20-17n-2e	70	3550
Gordon Oil Co., Ashley 3, se nw sw 4-17n-1e	*	3676
Bell-Marks, Inc., State 1, se se se 20-18n-1w	*	3750
Schember 2, ne sw nw 26-18n-1w	115	3601
Stork Oil Co., Armstrong 1, se nw sw 23-18n-1w	25	3607
Smith Pet. Co., Chovich 2, se nw se 23-18n-1w	25	3593
Isabella County—		
Bell-Marks, Moore 1, se nw sw 8-13n-5w	*	3751
Rowmor Corp., Weidman 1, n½ ne sw 26-13n-5w	*	3596
Mecosta County—		
Daily Crude Oil Co., Thrush 1, sw nw se 25-16n-7w	*	3815
Ogemaw County—		
Weber Oil Co., Zahm 2, sw nw nw 34-22n-2e	70	2673
Van Buren County—		
Louis Rose, Peters 1, se nw sw 11-1s-13w	¶	2085

*Failures; †Junked; ¶Million cu. ft. gas

IMPORTANT WILDCAT TESTS

ARKANSAS

Calhoun—C. E. Murdock's Southern Kraft 1, se nw nw 17-14-13, dr 800 ft. S. S. Alexander's Smythe 1, ne ne 7-11-14, spd. **Clay**—Canadian American Oil Co.'s Smith 1, c ne nw 9-20-8, elev 375 ft, top Nacatoch 800 ft, sd 1005 ft shale. **Cleveland**—W. E. Allaun Tr.'s Moore Est. 1, sw se nw 34-9-10, sd 2915 ft. **Columbia**—J. A. Longino's Baker 1, se nw nw 13-17-20, mim. E. O. Olds' Mary Dennis 1, nw se sw 4-17-21, owdd, td 4513 ft. G. H. Vaughn & Shell's Garrett 1, c ne se 12-17-20, dr 6280 ft, shale and lime. Standard of La.'s Tina Crumpler 1, c sw nw 15-17-19, top chalk 2391 ft, set 9⅝-in csg 2408 ft, top Permian lime 7356 ft, dr out cement to 7409 ft, perf csg, flowing 50 bbls fluid per hour, 60 percent sw, td 7500 ft. J. L. Warren 2, NE NE NE 18-16-22, base chalk 2120 ft, dr 3165 ft. Harris Unit 1, c ne sw 15-17-19, rur. Atlantic Ref. Co.'s Harrington 1 (was M. Talley 1), c sw nw 14-17-20, dr 7047 ft; M. Talley 2, nw sw 14-17-20; Baker 1, se ne 14-17-20, elev 377 ft, top James sand 3802 ft, dr 6919 ft; Baker 2, sw ne 14-17-20, lcn; Baker 3, sw nw 14-17-20, lcn; Baker 4, nw ne 14-17-20. Petroleum Finance Corp. of Texas' Alice Baker 1, c sw nw 13-17-20, elev 359 ft, top James sand 3750 ft, dr 7228 ft, sandy shale; Barnett 1, c nw se 14-17-20, lcn. Tide Water Associated's J. T. Beene 1, se nw 15-18-19, rur. **Craighead**—Tenn. Ark. Inc.'s Ruby Martin 1, ne ne 35-14n-3e. **Crittenden**—Stanley Oil Corp.'s D'Anna Hrs. 1, c 18-8n-9e, top Paleozoic 3243 ft, arr acidize 3331 ft. **Little River**—J. G. Strahan's Dierks Lbr. Co. 2, sw se 21-12-28, elev 268 ft, owdd, top lime 2421 ft, sd 3201 ft. **Lonoke**—J. W. Eddington et al's Anderson 1, nw ne 7-4-9, 12-in csg 85 ft, sd 600 ft. Cabot Drlg. Co.'s Benson 1 (Cabot townsite lcn), sd 600 ft. J. E. Russell's Gunter 1, se se 17-5s-10w, sd 1620 ft. **Miller**—F. F. Earles' General American 1, se sw 20-14-26, sd 1232 ft. **Pulaski**—Coker Oil Corp.'s M. S. Stone 1, sw ne se 36-3n-11w, 12½-in csg 108 ft.

CALIFORNIA

Los Angeles: Castaic—Royal Land's No. 1, 8-4-17, dr 1083 ft. **La Mirada**—D. H. B. Oil's Buena Park 1, 34-3-11, dr 100 ft. John McKeon's Carmenita 1, 21-3-11, dr hard shale oih 8000 ft. **Mint Canyon**—Mojave Pet. Co.'s Jennings 1, 33-5-14, rur, owdd, 2543 ft. **San Fernando**—Tide Water Associated's Porter 1, 27-3-16, to test 3799 ft. **San Pedro**—R. T. Grady's Supulveda 1, 23-5-14, rig. **Whittier**—Security Lands No. 1, 8-2-11, dr 2023 ft. **Orange: Costa Mesa**—A. V. Oil's No. 1, 16-6-10, testing 4634 ft. **San Bernardino: Chino**—Southern Couties' Los Serranos 1, 22-2-8, dr 900 ft. **San Diego: Carlsbad**—Dauphin Dev. Co.'s Irwin Kelly 1, 16-12-4, dr 100 ft. **Fresno: Coalinga**—Holly Dev. Co.'s No. 1, 12-20-15, lcn. Petroleum Securities' Grimes 88-12C, 12-20-15, good oil sand topped 6780 ft, r 6787 ft; No. 7-7F, 7-20-16, dr 6511 ft; No. 31-18F, 18-20-16, lcn. Magnet's Fearon 2, 18-20-15, dr 3700 ft. Medford's F. C. Goetz 1, 10-20-15, pb to redrill 5500 ft, td 5663 ft. Standard's No. 82-13-C, 13-20-15, dr 5583 ft. Superior's Hight 1, 8-20-16, dr 7625 ft. Texas Co.'s Mohawk 19, 12-20-15, wocs 4424 ft. Tide Water Associated's Fleishacker 57-1, 1-19-15, dr 1000 ft; Guardian 66, 12-20-15, dr 5358 ft. Universal Consolidated's Leavitt-Hintze 1, 12-20-15, dr 6735 ft. **East Coalinga**—Pure's S.P.L. Co. 11, 31-18-17, coring 11,974 ft. **Jacalitos Hills**—Jacalitos Pet. Co.'s No. 1, 14-21-15, dr 7037 ft. Dauphin Dev. Co.'s Ragan 1, 19-21-14, dr 1213 ft. **Mendoda**—Cyrus Pierce's Shorb 1, 16-14-12, lcn. **Kern: Belridge**—F. E. Abbott's No. 1, 18-27-19, rig. **Buena Vista Lake**—Ohio's KCL A-8, 32-31-26, will re-perforate 11,186 ft; KCL F-1, 10-31-25, dr 4124 ft. **Buttonwillow**—California Lands' Salisbury 1, 7-29-24, rur. **Devils Den**—Gibson Oil's Alferitz 3, 14-25-18, dr 1004 ft. Geo. Goodrum's Baron 1, 24-25-18, owdd 1210 ft. **Dominion**—Master Pet. Co.'s U. S. 1, 34-26-28, sd 823 ft. **Edison**—G. E. Renner's R. H. L. 2, 27-30-30, rur. **Elk Hills**—Richfield's Tupman-Western 1, 32-30-25, dr 7167 ft. **Fruitvale**—Texas Co.'s Camp-West-Lowe 1, 7-29-27, dr 9213 ft. Continental's KCL B-2, 12-29-26, dr 8570 ft. **Grapevine-Wheeler Ridge**—Petrol's Reserve-Petrol 33-5, 33-11-19, rur to deepen 4607 ft. Hall-Baker's Reserve 33-2, 33-11-19, will replug 4615 ft. Richfield's KCL 1, 28-11-20, dr 6001 ft. Wilshire's Tejon 34-1, 34-11-19, rig. **McFarland**—C. C. White's Armstrong 2, 9-26-26, skidding rig to lcn. **McVan**—Desert Glow's No. 3, 14-27-27, rig. Framac's Brown 3, 22-27-27, bailing water and sand 1355 ft. **Mount Poso**—Trico O&G Co.'s Villard 1, 17-26-28, rur. **Richgrove**—Dilamar's Quinn 1, 15-25-27, pumping 20 bbls daily gross 2956 ft. **San Emigdio**—Shell's KCL 1-A4, 26-11-22, dr 10,374 ft. **Union Avenue**—Richfield's Union Avenue 1, 6-30-28, dr 4587 ft. **Wasco-Semitropic**—Continental's KCL A-3-8, 8-27-24, dr 12,613 ft; Seaboard-Associated KCL C-1, 27-27-24, preparing to redrill, pb 11,049 ft, td 12,778 ft. Standard's Mushrush 1, 7-27-24, dr 10,894 ft; KCL 8-B-1, 17-27-24, dr 12,100 ft. **Kings: Dudley Ridge**—Falcon Oil's Josephine 2, 24-23-20, removed equipment, td 6499 ft.

ABBREVIATIONS

The following abbreviations, signs, etc., are used in completions and wildcat reports in THE OIL WEEKLY.

*—*dry hole abandoned well.*
‡—*salt water (completions).*
†—*junked and abandoned.*
¶—*million feet of gas.*
abd—*abandoned.*
bbls.—*barrels.*
br—*building rig.*
bs—*basic sediment.*
csg—*casing.*
co—*cleaning out.*
dd—*drilling deeper.*
dk—*derrick.*
dr—*drilling.*
fsg—*fishing.*
ft—*feet.*
hfw—*hole full of water.*
in—*inches.*
lcn—*location.*
m—*milling.*
mim—*moving in materials.*
mit—*moving in tools.*
mot—*milling on tools.*
n, s, e, w—*north, south, east, west.*
oih—*oil in hole.*
owdd—*old well drilling deeper.*
owpb—*old well plugging back.*
pb—*plugged back or plugging back.*
r—*reaming.*
rog—*rig on the ground.*
rur—*rigging up rotary tools.*
rust—*rigging up standard tools.*
sd—*shut down.*
sdtr—*sidetracking.*
sg—*show gas.*
si—*shut in.*
so—*show oil.*
so&g—*show oil and gas.*
spd—*spudding.*
sr—*straight reaming.*
sw—*salt water.*
td—*total depth.*
ur—*underreaming.*
wih—*water in the hole.*
wo—*workover.*
wocs—*waiting on cement to set.*
wosr—*waiting on standard rig.*

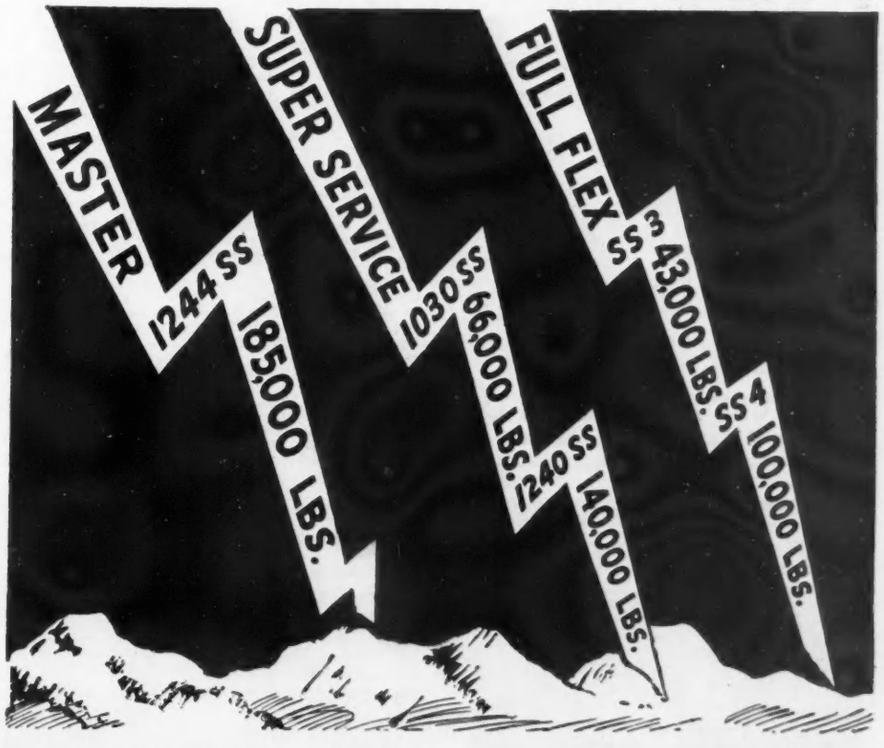
Tulare Lake—Athalie Irvine's No. 1, 11-24-20, dr 2110 ft. **Tulare: Ducor**—Nelson & Davison's Muller 1, 1-24-27, will run electrical log 1345 ft. **Trico**—Caminol's A.O.G. 3, 29-24-24, dr 7984 ft. **Santa Barbara: Gato Ridge**—Barnsdall's Pezzoni 1, 15-8-32, rig. Petrol's Magenheimer 5-11, 9-8-32, dr 4078 ft. **Lompoc**—J. E. O.Donnell's Helen 1, 8-7-33, dr 3954 ft. **Los Olivos**—Continental's La Laguna 2, 25-8-31, rur. **Orcutt**—Warren Deuel's Garrett 1, 12-9-34, rig. **Santa Barbara Mesa**—Anacapa Oil's Lowe 1, wocs 2108 ft. Trans-Oceanic's Morrison 1, dr 3680 ft. **San Luis Obispo: Elkhorn**—California Pet. Co.'s Job 1, 6-10-24, sd 2210 ft; Irons 1, 19-10-24, rur 1710 ft. H. E. Lee's Defiance 1, 7-32-22, dr 200 ft. G. E. Renner's R.H.L. 1, 7-32-22, lcn. **Edna**—Loma Grande's Luis 1, 30-12-33, rur. **Huasna**—Hancock's Scherer-Dickes 1, 30-12-33, bailing 5593 ft. **Paso Robles**—Vanguard's Clark 1, 26-27-14, dr 4806 ft. **Ventura: Ojai**—High Mesa's Butcher 1, 16-4-22, co to deepen 1710 ft. **Sespe**—Commander's No. 7-F, 13-4-19, r 575 ft. Charles R. McKinnis' Cosley 1, 14-4-19, dr 770 ft. Merchants' Cochrane 8, 1-4-20, dr 852 ft. St. Louis' Williamson 1, 1-4-20, co 420 ft. **Shiells Canyon**—Texas Co.'s Shiells 135, 4-3-19, dr 1190 ft. **South Mountain**—Albatross' Scheiferle 1, 17-3-20, rig. Clipper's Calco 1, 17-30-20, rig. Texas Co.'s Yale Richardson 5, 13-3-21, dr 6346 ft. **Timber Canyon**—Hardison & Temple's No. 1, 22-4-21, oih 656 ft. J. W. Martin's Arnett 1, 15-4-21, fsg 1230 ft. Stallings Senter & Ahlburg's Stallings 1, 24-4-21, fsg 1445 ft. **Ventura**—Ventura Drlg. Co.'s No. 1, 10-3-23, fsg 330 ft.

FLORIDA

Levy—Florida Oil Discovery Co.'s Sholtz 2, sw sw ne 9-15s-13e, odor gas 3853 ft, sd 3986 ft shale. Nassau—St. Mary's River Oil Corp.'s Hilliard Turpentine Co. 1, nw nw se 19-14n-24e, elev 110 ft, 6⅝-in csg 3935 ft, sd for sand lime 4510 ft. **Polk**—Edw. A. Hill's Polk County Lbr. Co. 1, nw nw ne 32-25s-25e, dk. **Suwannee**—Wm. G. Blanchard's Lucy Cotton 1, se ne 35-3s-11e, elev 70 ft, sd for heavier rig, td 200 ft. J. W. Phillips Oil Explorations' Shilkett 1, nw nw 14-4s-14e, spd.

ILLINOIS

Bond—Huppard et al's Dresser 1, sw ne nw 21-6n-4w, sd 1525 ft. Elmor et al's Dilman 1, sw se sw 13-6n-2w, dr 445 ft. **Cass**—Duval's Bowen 1, nw nw se 30-17n-12w, sd 530 ft. **Clinton**—Farreley et al's Berginan 1, nw sw nw 30-1n-3w, ru. Schlafly's Brinkham 1, ne ne



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nw 31-1n-2w, dr 1710 ft. Phelps' Dodillet 1, se nw sw 25-1n-1w, fsg 1425 ft. Traham et al's Nicoley 1, nw ne 14-2n-1w, dr 1810 ft. Sappington et al's Hilgemann 1, se ne nw 22-3n-3w, dr 1050 ft. M. & K.'s Kesner 1, ne nw ne 10-3n-2w, dr 510 ft. **Coles**—Kingwood's Tomberlin 1, sw se se 21-11n-10e, dr 2860 ft. **Cumberland**—National Consumers' Harrison 1, ne se ne 17-9n-9e, sd 1510 ft. **Edgar**—Bearcey et al's Blair 1, nw ne nw 24-14n-14w, dr 300 ft. Lapsley's Roll 1-B, sw sw ne 17-14n-13w, dr 120 ft. **Edwards**—Leach Bros.' Lee 1, sw ne se 11-1s-16e, tested 3370 ft, to dd. **Franklin**—Adams' Ben Coal 1, sw sw ne 19-5s-2e, dr 2000 ft. Amerada's Zeigler 1, sw ne nw 14-7n-1e, dr 2810 ft. **Gallatin**—Bailey et al's Logan 1, se ne nw 21-8s-8e, rng csg, td 1315 ft. **Jackson**—Eason's Bowlin 1, c se ne 12-7s-2w, lcn. Eason's Bowlin 1, se se ne 12-7s-2w, ru. **Jasper**—Kingwood's Harrison 1, c w½ sw sw 2-7n-10e, dk. **Jefferson**—Benedum-Trees' Jeff 1, c nw ne 16-4s-2e, woc, td 315 ft. Price et al's Hamilton 2-A, sw sw nw 20-4s-3e, dr 1915 ft. **Fayette**—Hayes et al's Tjull 1, c se sw se 14-8n-1e, dr 610 ft. Bell's Sloan 1, swc 4-8n-3e, dr 150 ft. Whisenant's Zanders 1, c sw se nw 36-9n-3e, pb to 1672 ft. **Lawrence**—Hubst et al's Houghton, c se se 12-4n-11w, mit. Kesl et al's Warner 1, nec 23-4n-11w, sd 1710 ft. **Macoupin**—Spence's Fee 1, se sw sw 13-8n-9w, fsg 1280 ft. **Madison**—Penn-Illinois' Pogg 1, nw ne sw 12-4n-9w, lcn. Spivey's Storms 1, se sw ne 15-6n-8w, dr 1635 ft. **Marion**—Iroquois' Phillips 1, ne ne nw 1-1n-13, spd. Gray et al's Welch 1, ep ne nw 2-1n-13, dk. Anna Bell's Schlagster 1, ne se sw 5-1n-1e, dr 615 ft. Thompson's Wright 1, c ne se ne 8-1n-1e, mit. Gardenhire's Weener 1, sw ne se 12-1n-1e, dr 1150 ft. Dalton's Clifton 1, ne sw sw 15-1n-4e, show oil 2682 ft. Boyce et al's Foster 1, c nw nw se 10-2n-1e, ur td 1540 ft. Oil Royalty's Suggs 1, c ne nw nw 11-2n-1e, dr 1115 ft. Carpenter et al's Holsapple 1, ne ne se 25-2n-1e, dr 1920 ft. Wanner et al's School 1, ne nw se 20-2n-2e, dk. Wanner et al's Church 1, sw nw 21-2n-2e, lcn. Sheppard et al's Greer 1, sw ne sw 30-2n-2e, sd 1918 ft. Pyramid's Roddy 1, se se sw 20-2n-3e, sd 2207 ft. Coyer's Mulvaney 1, se ne se 6-2n-4e, dr 970 ft. Shobe's Morey 1, sec 4-4n-1e, spd. **Massac**—Kahle et al's Harvick 1, swc 23-14s-3e, sd 3000 ft. **Menard**—Scroggins' Fee 1, c sw sw 24-19n-5w, rng csg pb depth 1555 ft. **Montgomery**—Baker et al's Satterlee 1, se sw sw 3-8n-5w, sd repairs to rig. Meyers et al's Klekamp 1, sw se 29-8n-5w, sd 910 ft. **Morgan**—Alexander's Gray 1, e½ nw ne 36-15n-9w, lcn. **Pope**—Whitlock's Anthis 1, nw nw ne 12-11s-5e, fsg td 1760 ft. **Richland**—Pure's Wakefield 1, w½ nw ne 26-4n-9e, lcn. **Saline**—Siegel et al's Choisser 1, ne nw nw 5-8s-7e, sd 100 ft. **Shelby**—Lewis et al's Hopkins 1, c se se se 32-10n-4e, spd and sd. Jolly et al's Jenkins 1, sec 28-10n-4e, sd 1000 ft. **Washington**—Harris et al's Page 1, c sp se se 18-1s-9w, ru. Morris' Marquard 1, se ne sw 33-1s-5w, dr 890 ft. Salvage's Reinkenameyer 1, se se nw sd 1030 ft. Lamb's Paul 1, nec 29-3s-5w, dr 1190 ft. Bitterman's Bonk 1, c se ne sw 16-3s-2w, ru. Thompson's Musial 1, se sw nw 19-3s-1w, td 1364 ft, to pb 1267 ft. **Wayne**—Gordon et al's Fitch 1, c wp sw nw 11-1n-8e, lcn. Iroquois' Walker 1, c nw nw nw 16-3s-9e, woc, td 3421 ft. **White**—Arab's Doerter 1, sec 12-7s-8e, dr 2995 ft. **Williamson**—Geological Synd's Scott 1, sw se se 4-10s-2e, fsg, td 1470 ft.

OIL BOOKS

The knowledge gained through years of work and study by some of the most capable men in the oil industry is set down in the various oil books published and sold by the Gulf Publishing Company. Catalog of these books furnished upon request.

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KANSAS

Barton—Continental et al's Pichner 1, se nw 23-16-11w, lcn. Carlock et al's Demel 1, ne nw 30-17-13w, co 485 ft. Long et al's Eveleigh 1, sw ne 3-18-14w, ru. **Butler**—Simpson et al's Equitable Life 1, swc 14-25-3e, sd 2940 ft. Dustin et al's Warner 1, se nw ne 17-27-5e, dr 2110 ft. Solomon et al's Sawyer 1, sw nw sw 2-28-7e, spd and sd. Pryor & Lockhart's Lietzke 1, nw sw nw 24-28-7e, spd. **Cowley**—McNabb's O'Neal 1, nw nw se 27-32-3e, spd. **Ellis**—Davis' Smith 1, sw nw ne 11-12-16w, show oil td 3391 ft. **Geary**—Fowler et al's Aye 1, nw sw nw 10-12-8e, dr 215 ft. **Greenwood**—McGinnis et al's Smith 3, nw ne ne 10-24-13e, show oil woc td 1665 ft. Nichols et al's Central Life 1, se sw 36-25-12e, ru. **Kingman**—Bunte Bros.' Shepard 1, sec 10-27-10w, dr 4025 ft. **Marion**—Johnson et al's Miles 1, swc 24-17-4e, dr 1900 ft. Harwood's Kaufman 1, nw nw se 27-17-4e, fsg 1240 ft. **McPherson**—Marylun's Dixon 1, nw ne nw 7-19-2w, sd 1850 ft. **Meade**—Pacific Midwest's Rexford 1, ne se sw 8-30-29w, sd 985 ft. Cragin et al's Adams 1, nw nw se 22-34-30w, rur td 200 ft. **Ness**—Carlock et al's Smith 1, c sw se 11-17-25w, rig. Sinclair Prairie's McKinley 1, sw nw 26-18-26w, dr 4000 ft. **Norton**—Vickers' Bozarth 1, c sw sw 15-5-24w, dr 3875 ft. **Ottawa**—Babcock et al's Copeman 1, c nl s½ s½ se 7-10-2w, dr 2125 ft. **Reno**—Scherzer's Krey 1, se sw 9-23-10w, ru. **Rice**—Watchorn's Caldwell 1, ne se ne 29-20-9w, dr 550 ft. **Rooks**—Producers' Ham 1, sw nw 25-7-19w, sd 1800 ft. Shindhelm et al's Dorr 1, se sw 13-9-16w, show oil, td 3515 ft. **Russell**—Stearns' Stielow 1, nwc 32-11-14w, dr 3450 ft. Hinkle et al's Kaufman 1, se nw 10-15-12w, show oil tst td 3190 ft. **Saline**—Sullivan et al's Erickson 1, nec 28-16-3w, sd 1750 ft. **Sedgwick**—Hudson et al's Fulton 1, ne se 35-28-1e, sd 2285 ft. Crowe et al's Murphy 1, sw se 34-29-1w, rig. **Shawnee**—Edwards' Detrich 1, c nw se 21-14-15e, sd 1130 ft. **Stafford**—Stanolind's Curtis 1, sec 31-21-12w, dr 1430 ft. Newbold et al's Walker 1, ne ne sw 24-24-12w, dr 3540 ft. **Thomas**—Ramsey et al's Ryan 1, c ne se 27-8-32w, spd. **Woodson**—Nathan et al's Ellis 1, nw nw se 35-25-14e, ur, td 1550 ft.

NORTH LOUISIANA

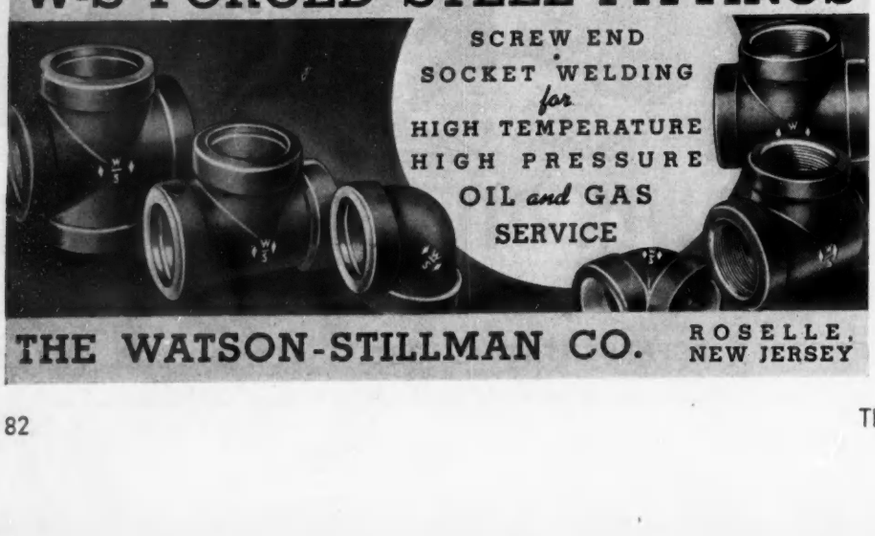
Bienville—DeSoto O&G Co.'s Wm. Ashley 3, c nw se 15-16n-10w, rog. Mrs. B. A. Fleming 1, nw nw 18-16n-9w, 10¾ in csg 2900 ft, dr 5810 ft. **Bossier**—Lloyd & Sloan's B. A. Sherrill 1, se se 12-19n-12w, dry abn, td 785 ft. **Caddo**—Oils, Inc.'s A. Cazaux 1, sw sw 16-16n-13w, 10-in csg 300 ft, sd 3375 ft. J. Thomas Driscoll, Inc.'s Woolworth 1, se se 19-18-14, lcn. Superior Oil Corp. & F. W. Martin's Andrew Querbes 1, 37-17n-13w, rur. R. E. Allison et al's Ellerbe 2, ne ne 28-18n-14w, rur. C. D. Loe's Lionel Meyer 1, 33-18-14, lcn. R. L. Bauman's Slattery 1, 35-18-14, lcn. **Caldwell**—Oakes et al's Kyles 1, sw ne 18-11n-3e, sd 470 ft. **Catahoula**—G. E. Foster et al's W. S. Peck 1, c s½ 39-10n-8e, sd 620 ft. Sibley-Sabine Corp.'s Peek 1, sw sw 39-10s-8e, dr 800 ft. **Claiborne**—E. T. Oakes et al's Kilgore 1, ne se 28-21n-5w, elev 288 ft, 5¾-in csg 5290 ft, logged saturated lime 5297-5305 ft and 5307-12 ft, swabbing oil, td 5337 ft. J. N. Buchanan's Miller Est. 1, ne sw 11-20n-8w, rur. **De Soto**—S. D. Taylor's Barnhart 1, ne se 20-14n-12w, lcn. Samuel S. Alexander's Stell A-1, ne ne 5-12n-16w, sr 1925 ft. Potter & Rubeling's Smith 1, sw se nw 6-12n-15w, lcn. G. H. Collins et al's Joyner 2, sw ne 28-11n-12w, set 7-in csg 2893 ft, woc, td 2925 ft. Al Sutton et al (formerly Fuqua & Gray), Frost-Johnson 1, se se 25-11n-15w, spd and sd. **Grant**—C. L. Thompson et al's Woodard 1, ne sw 10-6n-3w, top Wilcox 2867 ft, sd 4527 ft. C. R. Bowers et al's Harrison 1, ne sw 21-8n-5w, dr 1582 ft. **Madison**—Continental Oil Co.'s Singer Mfg. Co. 1, n½ ne nw 3-15n-11e, dr 3520 ft. **Natchitoches**—Joe E. Popkins' Peavy-Wilson 1, nw nw 36-7n-9w, sd 300 ft. W. T. Ryan et al's Lambert 1, nw nw 4-8n-9w, sd 4189 ft. Raines Bros.' Allen Plantation 1, ne sw 22-10n-9w, fsg 1250 ft. **Rapides**—J. J. Farrell's Certner 1, nw se 16-4n-1e, rur. E. F. Kalb et al's Lee Lbr. Co. 1, nw sw 9-5n-3e, spd and sd. **Red River**—Glassell & Whitehurst's LeLong 1, ne nw ne 25-12n-11w, sd 3113 ft. James M. Forgatson's Marston 1, se se 30-14-10, mim. W. J. Hunter's Long Bell 4, se se 30-13n-9w, abn, td 1119 ft. Ramsey 1, sw sw 20-13-9, rur. **Sabine**—W. L. McClanahan et al's Frost-Johnson 1, se ne sw 22-9n-13w, elev 196.2 ft, top Nacatoch 1531 ft, top Saratoga chalk 1578 ft, Annona chalk 1816-2041 ft, Austin chalk 2854-3007 ft, top Glen Rose 3286 ft, blew out gas, so 4745 ft, pb to 3050 ft, tested mud, sg, arr pb to 1750 ft, testing. H. M. Sneed et al's Leone 1, nw se 8-7n-13w, rur. J. G. Sutton-Zwolle Oil Co.'s Bowman-Hicks 2, w½ sw nw 24-7n-13w, lcn. Albert Reich et al's Glaque 1, ne se ne 27-7n-14w, sd 4317 ft. F. W. Martin & Co.'s Sabine 2, c e½ ne 23-7n-14w, lcn. A. Boykin King's Sabine 1, c nw nw 19-7n-13w, sd 4517 ft, may deepen to 6000 ft; Sabine A-1, c w½ nw nw 19-17n-13w, lcn; Sabine 2, c sw nw 19-7n-13w, lcn. Zwolle Synd.'s Mansfield Hdw. Lbr. Co. 1, ne ne 8-7n-14w, arr set csg, td 4260 ft. Tropical Oil Co.'s (was Quality Prod. Co.), Long Bell Lbr. Co. 1, se se 5-8n-13w, sd 2178 ft. **Webster**—W. M. Chambers' Thomas 1, se se 11-22n-11w, ru and sd. Magnolia's Pardee Co. 1, ne nw ne 17-23n-11w, elev 203 ft, top Blossom 2665 ft, tested 17 joints sw 16 min dst 2664-73 ft, top Pettit 5920 ft, logged good porosity so, sg, 5920-6025 ft, testing, td 6025 ft. H. M. Branton 1, ne ne 6-22n-9w, rur. Bailey-Rosenberry 1, nw se 29-23n-9w, lcn.

SOUTH LOUISIANA

Acadia—Atlantic's Klumpp 1, northeast of Tepetate, 12-7s-2w, woc 2530 ft. **Avoyelles**—Magnolia's Bowden 1, Evergreen area, 7-2s-4e, dr shale 1840 ft. **Calcasieu**—Sun's Lutcher Moore 1, Luntia area, 12-8s-3w, woc 2165 ft. **Cameron**—Federal Royalty Co.'s State 1, Calcasieu Lake, 1-13s-9w, dr surface 100 ft. Humble's Hanszen 2, Chalkley area, 9-12s-6w, woc 8172 ft. Union Sulphur's Miami Corp. 3, Willow Lake prospect, 33-12s-8w, dr shale 5609 ft. Pure's Calcasieu National Bank 2, Lowry area, 9-12s-6w, dr shale 2100 ft. **Jefferson Davis**—Continental's J. Sturdivant 1, South Roanoke, 36-10s-4w, dr sand 11,300 ft. **Lafourche**—Sun's Dibert Stark and Brown 1, Chacahoula dome, 70-15s-15e, woc 7256 ft. Texas Co.'s La Terre 1, Golden Meadows prospect, 1-20s-21e, dr shale 9519 ft. **Orleans**—W. T. Burton's State 1, in Lake Ponchartrain, 10s-13e, dr shale 8211 ft; same operator's Faubourgde Monteluzin 1, Lake Ponchartrain, 11s-13e, dr shale 4898 ft. **St. James**—Continental's Colonial Sugars 1, Convent, 46-12s-5e, dr shale 9108 ft. **St. John**—Shell's Godchaux Sugar 1, La Place, 97-11s-7e, dr lime 9240 ft. **St. Landry**—Herton's Thistlewaite Lbr. Co. 1, Beggs area, 60-4s-4e, dr shale 4201 ft. **St. Martin**—Shell's Jeanerette Lumber Co. 1, West Lake Verrett area, 14-14s-12e, woo 6955 ft. Texas Co.'s St. Martin Land Co. 11, Henderson, 21-8s-7e, woc 8912 ft; same operator's State 6, Lake Mongouloui area, 10-10s-9e, dr hard sand 7619 ft. **Terrebonne**—Shell's Peters 1, South of Houma, 73-18s-18e, preparing to drill stem test 9880 ft. Texas Co.'s Continental Land & Fur. Co. 1, Lake De Cade area, 29-18s-14e, dr shale 309 ft. **Vermilion**—Stanolind's Fred Stovall 2, Inra-Coastal City prospect, 88-14s-3e, lcn.

MICHIGAN

Allegan—O'Brien's Raber 1, 36-2n-13w, so 1476 ft, sd 1599 ft. Daily's Anderson 1, 17-2n-15w, dr 1290 ft. United's Low 1, 24-1n-15w, sd 1209 ft. Leighton's Wiggins 1, 15-4n-11w, rig. Shimmel's Saugatuck 1, 28-3n-15w, dr 310 ft. Leonard's Konig 1, 35-3n-16w, dr 210 ft. Sowell's Arbanas 1, 8-3n-11w, dr 365 ft. **Barry**—Associated's Natzel 1, 4-2n-9w, sd 1786 ft. Collin & Soper's Simmons 1, 3-4n-10w, co 1355 ft. **Calahoun**—Mar Cal's Woods 1, 13-2s-6w, rig. Verona Crude's Fruin 1, 29-1s-7w, r 2060 ft. **Clinton**—McDonald's Koeppen 1, 19-6n-3w, dr 790 ft. **Gladwin**—Brehm's Kitchen 1, 20-19n-1w, sd 1405 ft. Sun Oil Co.'s Reid 1, 18-19n-2w, lcn. Smith's Nash 1, 28-20n-2w, sd 1450 ft. **Gratiot**—Chartier's Duffo 1, se se nw, 6-9n-3w, rig. Michigan Chemical's Fee 9, 24-12n-3w, dr 3809 ft. **Huron**—Leonard Prospecting's Milling Co. 1, 10-16n-15e, dr 2635 ft. **Isabella**—Keeler & Chatham's Stevens 1, 13-16n-6w, dr 410 ft. Teater's Bellinger 1, 32-14n-5w, dr 2910 ft. **Kent**—Comstock's Donovan 1, 4-8n-9w, Dundee 2822 ft, dr 2831 ft. **Mackinac**—Van Kuren's Hiawatha Club 2, 27-44n-9w, co 610 ft. **Midland**—Sun Oil Co.'s State B1, 9-15n-1w, elev 656.6 ft, Dundee 3672 ft, Monroe 3830 ft, Sylvania 4967 ft, so 5020-25 ft, td 5069 ft, sw, pb 5039½ ft, testing. Stork Oil Co.'s Stegar 1, 23-15n-2e, rig. Teater's Tushingham 1, 26-16n-2w, dr 3770 ft. **Missaukee**—Teater's Gray 1, 32-23n-5w, Dundee 3655 ft, sw 3746 ft, Monroe 3835 ft, sd 3901 ft. Moser Oil's Scherenhelm 1, 36-23n-7w, fsg 1314 ft. **Montcalm**—Rex Oil's Cheney 1, 11-9n-5w, dr 1100 ft. Taggart's Jacks 2, 7-12n-9w, fsg 3566 ft. **Ogemaw**—Pure Oil Co.'s State D1, 5-23n-2e,



dr 245 ft. **Osceola**—Fortney Oil Co.'s Beall 1, 25-18n-9w, rig. Champion's Ealy 1, 30-20n-8w, dr 410 ft. **Otsego**—Summer's Geraldine 1, 28-30n-3w, dr 610 ft. **Ottawa**—Sommerville's Bowan 1, 19-7n-14w, dr 900 ft. Fletcher & Anderson's Copp 1, 9-8n-15w, dr 410 ft. Newhouse's Scott 1, 25-6n-16w, dr 500 ft. **Roscommon**—Sun Oil Co.'s Hanson 1, 2-23n-2w, dr 2360 ft. Kirkham's Miller 2, 6-22n-2w, dr 1300 ft; Helen 1, 36-22n-2w, dr 600 ft. **St. Clair**—Bryan's Graham 1, 11-8n-16e, dr 350 ft. Black River's May 2, 32-7n-17e, dr 200 ft. **Shiawasse**—Buzard's McCall 1, 11-6n-3e, sd 1500 ft. **Van Buren**—Whitehill & Drury's Webster 1, 35-2s-16w, dr 910 ft. Gulf Ref. Co.'s Iodent 1, 25-4s-15w, rig. **Wayne**—Bellville's Scheffler 1, 26-3s-8e, sd 2946 ft.

MISSISSIPPI

Calhoun—L. C. Lucas' B. C. Boland 1, sw sw 9-22n-9e, spd and sd. S. & O. Properties Inc.'s G. C. Connor 1, se ne 12-24n-8e, sd 2120 ft. **Claiborne**—Claiborne County Dev. Co.'s Ruth Haydn 1, s½ se 55-11n-2e, rur to deepen, td 2950 ft. **George**—Cleve Love et al's J. J. Newman Lbr. Co. 2, c sw 9-1s-8w, elev 111 ft, 10-in csg 1374 ft, top Het 1382 ft, dr 4854 ft sandy shale and boulders. **Hinds**—Cleve Love et al's Montgomery 1, sw se se 28-6n-4w, lcn. S. F. Johnson 1, ne se 29-6n-1w, elev 343 ft, top black shale 3040 ft, top chalk 3097 ft, top Eutaw 3617 ft, top Red Beds 3657 ft, 7-in csg 3355 ft, sd 3707 ft. Progressive Realty Co. 1, se sw 35-6n-4w, top Wilcox 2750 ft, ran electrical tester, sd 6596 ft. G. Jeffries' Gaddis Farms Inc. 1, nw se 26-7n-4w, sd 3253 ft, sandy shale. **Lamar**—Southern Mississippi Pet. Corp.'s Morris 1, nw se 4-2n-14w, elev 332 ft, top Het 1138 ft, 10-in csg 1144 ft, top Vicksburg 1615 ft, top Minden lime 2123 ft, top Wilcox 2735-53 ft, sd 3029 ft (Wilcox). **Montgomery**—Dr. T. A. Chichester et al's E. C. Mitchell 1, se nw sw 30-30n-7e, dk. **Pontotoc**—Waldrop, Melvin & Waldrop's Bray 1, sec n½ sw 17-11s-1e, set surf csg 166 ft, sd 280 ft shale. **Simpson**—Goodwill O. & G. Co.'s Berry 1, se sw 33-2n-4e, elev 307 ft, sd 2810 ft gray gumbo. Cleve Love et al's N. E. Garner 1, 1-10n-17w, spd and sd. **Yalabousha**—Acme Holding Co.'s S. D. Boyle 1, nw nw 33-25n-7e, elev 415 ft, dr 2402 ft (Tuscaloosa) (no recent report).

OKLAHOMA

Atoka—Shelton's Leo 1, ne nw sw 2-4s-10e, sd 3455 ft. **Beckham**—Wagnor's McGee 1, nec se 25-8n-22w, sd 1029 ft. **Choctaw**—Ross' Hardy 1, sec nw 21-7s-15e, drlg 930 ft. **Coal**—Carter's Mote 1, c e½ sw nw 19-2n-9e, drlg 6250 ft in Hunton lime. **Comanche**—Eldridge's Aetna 1, nw se sw 2-1n-10w, ur at 620 ft; Roach's Green 1-A, sec sw 2-1n-13w, sd 765 ft. **Garfield**—I. T. I. O.'s Kichin 1, c se se 17-22n-5w, drlg 5965 ft; Champlin's Boehm 1, swc ne 4-24n-8w, drlg 6190 ft. **Grady**—Carter's Smith 1, c se sw 26-5n-8w, bld dk. **Hughes**—Cooper's Samuel 1, nw se ne 19-6n-8e, mit; Holdenville's Fairgrounds 1, sec 13-7n-8e, sd 1200 ft; Doup's Bond 1, nec sw 7-7n-9e, drlg 1385 ft. **Kay**—Crawford's Boehl 1, sec nw 34-27n-2w, rur; Blosser's Rudolph 1, nec sw 27-29n-1w, td 3500 ft, wost. **Kiowa**—Anderson's School Land 1, c sec 14-6n-17w, drlg 1945 ft. **Kingfisher**—Hollenback's Zerger 1, c se sw 5-18n-6w, drlg 2095 ft. **Lincoln**—British's Markwell 1, c e½ e½ ne 26-12n-4e, drlg 5055 ft. **Love**—Sinclair's Peabody 1, nec 35-6s-2w, oil show, drlg 6850 ft. **Noble**—Hollenback's Mathews 1, c sw nw 9-20n-1e, sd 3915 ft. Superior's Loula 1, ne se sw 16-22n-1e, co at 3406 ft. **Okfuskee**—Amerada's Conard 1, ne nw sw 33-10n-10e, sd 4056 ft. **Pawnee**—Kelly's Hill 1, swc se 1-21n-5e, sd for water, rig. **Payne**—Sinclair's McQuain 1, ne nw ne 22-19n-1e, sd 4966 ft. **Pottawatomie**—Speers' Vinson 1, sw nw sw 29-8n-5e, sd 2710 ft. Hall's Merkel 1, nwc se 32-8n-5e, rig. Pace's Riley 1, nec se 2-9n-3e, drlg 2350 ft. **Seminole**—Boettcher's Morgan 1, se ne nw 8-5n-7e, drlg 2245 ft. **Tillman**—Smith's Hammel 2, ne nw nw 6-5s-15w, fsg 2200 ft. **Washita**—Continental's Proctor 1, c nw¼ 28-10n-20w, drlg 2995 ft.

WEST TEXAS

(This report is confined to the south and east portion of the Permian basin and the Delaware basin.)

Brewster—Storey et al's J. P. Wilson 1, c se nw T. & St. L. sec 3, blk 212, elev 3609 ft, sd 2545 ft. Wilcox et al's W. H. Kokernot 1, nw sw sec 12, blk C, J. V. Massey sur, sd 1871 ft. **Coke**—Barnett Pet. Corp.'s J. E. Mims 1, sec T&P sec 39, blk W, elev 2352 ft, sd 1861 ft. **Crane**—Ardrey, Tr.'s J. B. Tubb 1-a, swc PSL sec 20, blk B-32, elev 2552 ft, dr 2510 ft. Gulf's M. B. McKnight 4, c ne se PSL sec 3, blk B-21, elev 2701 ft, top Simpson 6160 ft, dr shale 6392 ft; University-Lassiter 2-B, swc sec 27, blk 30, elev 2596 ft, top anhydrite 1075 ft, top salt 1130 ft, trace oil 3010-30 ft, inc o&g 3097-3113 ft, swab 25 bbls oil, sd for shot; W. N. Waddell et al 9, c ne ne PSL sec 7, blk B-27, rig. Magnolia's University 1-6, sec sec 6, blk 30, rig. Texas Co.'s University 1-G, nec sec 7, blk 30, elev 2642 ft, top anhydrite 1127 ft, top salt 1190 ft, top Yates 2150 ft, top lime 3000 ft, oil pay 3185-3220 ft, sul w 3472-95 ft, pb to 3380 ft, shot 600 qts 3175-3350 ft, flowed 154 bbls initial and quit. **Crockett**—Will Ohlhausen et al's

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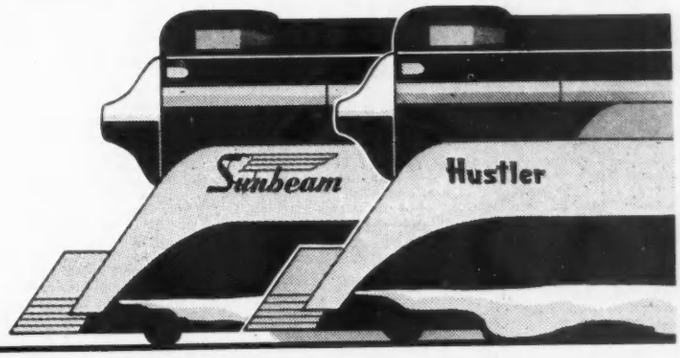

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Ar. DALLAS ..... 9:10 P.M.

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Lv. DALLAS ..... 5:00 P.M.
Ar. HOUSTON ..... 9:25 P.M.

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Ar. WACO (Bus) ..... 12:35 P.M.
Ar. DALLAS ..... 2:00 P.M.
Ar. FT. WORTH (No. 83) 3.00 P.M.

Southbound

Lv. FT. WORTH (No. 82) 6:50 A.M.
Lv. DALLAS ..... 8:00 A.M.
Lv. WACO (Bus) ..... 9:15 A.M.
Ar. HOUSTON ..... 2:00 P.M.

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J. W. Owens 1, sd 1936 ft. J. T. Petty et al's A. C. Hoover 1, sec GC&SF sec 11, blk 1, sp and sd. **Culberson**—J. E. Fitz-Patrick et al's Wm. Cameron & Co. 1, c nw nw PSL sec 24, blk 81, sd 945 ft. Preston W. Lewis et al's Nieuhaus 1, se se ne PSL sec 13, blk 109, top Delaware lime 1178 ft, dr 2490 ft. Harry J. W. Nieuhaus et al's C. M. Caldwell 1, se nw PSL sec 15, blk 109, elev 3878 ft, top Delaware lime 1165 ft, top sand 1215 ft, sd 2500 ft. L. G. Sheddan et al's S. J. Isaacs 1, center PSL sec 25, blk 52, sd 280 ft. **Jeff Davis**—H. F. Wilcox O&G Co.'s Jones-Coffield 1, nec H&TC sec 121, blk 4, elev 4537 ft, sd 3747 ft. **Ector**—Sinclair-Prairie's Paul Moss 2-B, swc T&P sec 40, blk 44, T-2-S, elev 3050 ft, top anhydrite 1390 ft, top lime 3570 ft, first so&g 3950-65 ft, and 3969-85 ft, first sul w 4162 ft, dr 4180 ft. Fields & Rogers' R. H. Speer-Owenwood 1, sw nw ne T&P sec 6, blk 44, T-2-S, cem cas 240 ft. **El Paso**—Tri-State Oil Co.'s Kinkel Bros. 1, nec sec 237, S. F. No. 7232, elev 3977, sd 3571 ft. **Fisher**—Forest Dev. Corp.'s W. E. Morrow 1, c nw nw H&TC sec 48, blk 2, elev 2028 ft, co 4230 ft. Daube Bros. et al's R. S. Hardy 1, near c sw sw H&TC sec 49, blk 2, dr 3345 ft. Owens-Snebold Oil Corp.-A. C. Varner's J. H. Milsap 1, swc w½ ne H&TC sec 61, blk 1, dr 1730 ft. T. G. Shaw Oil Corp.'s J. B. Stribling 1, c se se H&TC sec 110, blk 3, elev 2113 ft, top red shale 2130 ft, base Coleman Junction 3473 ft, top Sedgwick 3540 ft, top Noodle Creek 3848 ft, dr 4405 ft. **Tom Green**—Spinner Oil Co.-H. L. Fannin's B. Reed 1, sub-div 39, Mayson-Perry sur, trace gas 4475-95 ft, dr 4755 ft. J. B. Watson et al's Llano 1, sec 16, Llano C.S.L. sur, dr 230 ft. **Howard**—S. S. Owens et al's D. S. Wright 1, nw se se T&P sec 33, blk 33, T-3-N, elev 2747 ft, sd 1375 ft. Ward Powell et al's Guitar 1, c ne sec 17, blk A, Bauer-Cockrell sur, elev 2508 ft, top anhydrite 1195 ft, top salt 1255 ft, top salt water 2965 ft, dr 2975 ft. **Hudspeth**—Haymon Krupp Oil & Land Co.'s K. S. Briggs 1, nwc T&P sec 24, blk 73, Tsp. 7, elev 4016 ft, co 4395 ft; S. J. Thaxton 1, near sec ne se T&P sec 34, blk 74, Tsp. 6, top gray lime 4580 ft, sd repairs, td 4815 ft. **Loving**—Argo Oil Corp.'s T&P Land Trust 1, se se sw T&P sec 17, blk 55, Tsp. 1, elev 3097 ft, top Delaware sand 3926 ft, pay 3945-84 ft, shot 130 qts 3945-75 ft, flows 35 bbls daily; T&P Land Trust 1-B, nwc T&P sec 21, blk 55, Tsp. 1, elev 3084 ft, top anhydrite 1307 ft, top Delaware lime 3939 ft, top sand 3969 ft, show gas 4024 ft, dr 4063 ft. **Menard**—Lee Pet. Co.-C. D. Hagerty's Jas. Callan 1, swc e½ of J. M. Franz sur, sec 36, elev 2026 ft, run 5½-in cas 1270 ft. **Nolan**—Frank Oyster-Ajax Drl. Co. et al's E. H. Withers 1, c sw T&P sec 65, blk 21, elev 2323 ft, sd 4508 ft. Union Oil Co. of Nevada's J. D. Pepper 1, nec T&P sec 51, blk 21, lcn. P. G. Smith et al's E. E. Adrian 1, near c sw T&P sec 43, blk 20, lcn. **Pecos**—Cox & Moore's White-Baker 1, c sw se T. C. sec 43, blk Z, sd 500 ft. J. N. Gregory et al's O'Neill-Humble 1-a, south cor n¼ H&GN sec 74, blk 10, dr 920 ft. Cardinal Oil Co.'s White-Baker 2-A-37, ne ne nw T. C. sec 37, blk Z, dr 1085 ft. Geo. J. Greer et al's Price Est. 1, nec H&GN sec 3, blk 12, cem cas 230 ft. Humble's A. H. Robertson 1, c nw ne T. C. Ry. sec 27, blk OW, rig. Magnolia & Tex-Mex Pet. Corp.'s J. H. McKee 1-a, near nw nw sw H&GN sec 24, blk 9 (jkd twice), elev 2385 ft, top Simpson 4775 ft, top Ellenberger 6102 ft, sul w 6262-67 ft, pb to 5306 ft, shot 190 qts 5265-5300 ft, dry and abd. E. R. Minshall et al's Haynie 1, sw sw nw T. & St. L. sec 28, blk 146, elev 3132 ft, sul w 3277-78 ft, dry and abd. H. H. Sides et al's Blackstone-Slaughter 1-a, near sec T. & St. L. sec 25, blk 130, sd 1850 ft. Stanley A. Thompson et al's Elsinore Cattle Co. 1, se se GC&SF sec 53, blk D, elev 2938 ft, fsh tools, td 7275 ft. E. M. Thomasson Prod. Co.'s J. Nations 1, sec 1, blk 105, W. P. Howard sur, sp and sd. Union Oil & Mining Co.'s First Nat'l Bank 1, near nec H&GN sec 6, blk 9, elev 2410 ft, sd 1760 ft. **Presidio**—Brite Production Co.'s L. C. Brite 1, ne¼ GH&SA sec 113, blk 12, sd 5427 ft. **Reeves**—Frankley & Rice's W. A. Tunstill 1, ne ne nw T&P sec 10, blk 56, Tsp. 2, elev 2906 ft, top Rustler 190 ft, dr 1600 ft. Lagoki Oil Co.'s Richards-Shaw 1, c n½ nw PSL sec 16, blk 59, dr 605 ft. Ohio Oil Co.'s Popham L&C Co. 1, nw T&P sec 18, blk 54, Tsp. 10, elev 3623 ft, dr shale 3030 ft. **Reagan**—Thomas Drl. Co.-E. H. Van Patton's J. O. Carr-Sun 1, near c ne sec 4, M. N. Hines sur, elev 2638 ft, top lime 2450 ft, dr 2470 ft. Culbertson & Irwin, Inc.'s J. F. Nunn-Standard 1, c ne nw L&SV sec 26, blk B, elev 2668 ft, top anhydrite 1240 ft, dr 1855 ft. **Runnels**—John Castor, A. E. Koerner & H. B. Goodrich's J. C. Beddo 1, sub-div 41, D. Diaz sur, lcn. J. W. McLean et al's E. H. Pflueger 1, Asa Clark sur, A-506, dr 1420 ft. Homer Price-A. E. Koener et al's J. C. Beddo 1, sub-div 51, D. Diaz sur, elev 1700 ft, top Palo Pinto lime 3498 ft, saturated lime 3515-3603 ft, pb to 3525 ft, used 8000 gals acid, flowed 10 bbls 40 gravity oil initial. Stephenson & Jackson's W. J. Fowler 1, near ne ne sw E. T. Ry. sec 150, fsh 1355 ft. **Schleicher**—J. M. Cooper-Cardinal Oil Co.'s Bert Page 2, c ne sw GH&SA sec 40, blk L, elev 2289 ft, top lime 5320 ft, tested 9,500,000 ft wet gas natural at 5441-5501 ft. H. P. Opp et al's J. T. Jackson 1, nw ne T. C. sec 41, blk LL, elev 2353 ft, sp and sd. **Scurry**—H. H. Coffield & Guthrie, Inc.'s E. E. Spears 1, nw nw sw H&TC sec 130, blk 97, elev 2294 ft, top lime 1512 ft, td 3107 ft, testing 1800 ft oih. P. G. Moran et al's F. W. Hardee 1, nwc H&TC sec 99, blk 97, sd 1000 ft. S. B. Roberts & Co.'s C. M. Wellborn 1, c w½ sw H&TC sec 146, blk 25, dr 2530 ft. **Sterling**—John W. Sward et al's T. G. Brennand 1, se se ne H&TC sec 107, blk 2, elev 2535 ft, top anhydrite 918 ft, top Yates 1028 ft, top brown lime 1746 ft, top solid lime 1820 ft, sd 3011 ft. **Stonewall**—Gen'l Crude Oil Co.'s J. D. Smith 1, sec H&TC sec 371, blk 2, elev 1958 ft, base red beds 2115 ft, top Dothan 3530 ft, top Noodle Creek 3640 ft, top Saddle Creek 3813 ft, dr 4860 ft. Stonewall Oil Co.'s Ima Harrison 1, nw ne nw H&TC sec 294, blk D, lcn. **Terrell**—Schermerhorn Oil Corp.'s H. P. Allison 1, c se¼ sec 22, blk B-2, CCSD&RGNG sur, elev 2649 ft, top Rustler 710 ft, top Blaine 1230 ft, sd 1420 ft. **Ward**—J. E. Fitz-Patrick, Frank T. Pickrell et al's H. B. Carr 1, c w¼ n¼ of H&TC sec 125, blk 34, elev 2645 ft, top Rustler 705 ft, top lower salt 3575 ft, base salt 4813 ft, top Delaware lime 5055 ft, top sand 5085 ft, sg 5101-04 ft, fsh tools, td 5105 ft; F. I. Dyer 1, w¼ n¼ H&TC sec 135, blk 34, elev 2709 ft, top Rustler 695 ft, base salt 3845 ft, top Delaware lime 5041 ft, sd 5085 ft. Mid-Continent Pet. Corp.'s Geo. Sealy-Mag 1, se se sw G&MMB&A sec 47, blk F, dr 1620 ft. **Winkler**—Sid W. Richardson's J. M. Bashara 1-A, sw sw se PSL sec 22, blk 77, cem sur csg.

EAST TEXAS BORDER COUNTIES

Harrison—W. F. Bridwell's Platt 1, F. C. Baker sur, owdd 5167 ft. **Marion**—Vestal et al's (was Tom Bell) Carrie Moseley 1, D. Lane sur, ran electrical tester, woc 2768 ft. **Panola**—Texas Co.'s Claude Adams 1, Thos. Cox sur, 13⅜-in csg 579 ft, 9⅝-in csg 5940 ft, elev 287 ft, top lower Marine 7792 ft. Ran electrical tester to 11,103 ft, dr 11,112 ft. Walters et al's Phomplin 1, W. Moore sur, set 12½-in csg 68 ft, sd 220 ft. Petroleum Heat & Power Co.'s Frost Lbr. Co. 1, Jno. H. Gibson sur, lcn. J. W. Bird 1, Geo. Gallasty sur, lcn. **Sabine**—Hugo Allen et al's (was H. R. Smith) Mrs. Jenny Brook 1, Isaac Low sur, 7 mi ne Hemphill, 360 ac, strong sg 5654 ft, cutting out drill stem, td 5654 ft. **Shelby**—C. L. Cope's Pickering Lbr. Co. 1, English sur, rur. Shelby Oil Co.'s Windham 1, A. K. Enlish sur, cored saturation 3397-3422 ft. testing, td 3422 ft. J. C. Windham 1, nwc Shelbyville townsite, lcn. A. R. Blount's Ethel Lovett 1, block 55, Shelbyville townsite, lcn. Redditt & Gray's Pickering Lbr. Co. 2, sec 237.8-ac tract, P. J. Loggins sur, 7-in csg cemtd at 2920 ft, sd 4225 ft. **Shelby**—Richards & Holloway's Ashberry 1, G. W. Mitchell sur, owdd, td 3405 ft.

SOUTH TEXAS

LAREDO DISTRICT

Duval—Anderson's Volpe 1, El Mesquite gr, wor. Appell's Rogers 1, El Mesquite gr, dr 1700 ft. Foster's Foster 1, sur 268, dr 2015 ft. Hiawatha's Southland 11, Santos Flores gr, dr 1000 ft. Magnolia's Duval 1, sec 81, dr 900 ft. Pearl's Smith-Corkill 1, sur 491, ru and sd. Wagner's Lampe 1, sec 497, testing, td 2692 ft. **Jim Hogg County**—Hamilton's Holbein 1, Holbein subd, dr 1500 ft. Henshaw's Martin 1, sur 38, dr below sur csg. Humble's Bass 2, San Rafael gr, testing 4700 ft sand. **McMullen County**—Allbright's Nueces 1, sur 119, completing on pump, 1213 ft. Barbara's Edrington 1, sec 79, wor. Kirby's Chylek 1, Hernandez sur, woo, 1038 ft. Schimmel's Kountz 3, sur 5, wocs, 1200½ ft. Spice's Edrington 1, sur 57, dr below sur cas. **Starr County**—Graham's Gutierrez 1, por 88, testing, td 2627 ft, 7-in csg at 2616½ ft. Hagan & Stewart's Salinas 1, Sacatosa gr, cor 1550 ft. Magnolia's Fee-Guerra 1, Santa Cruz gr, dr below 3900 ft. Sun's McKinney 1, sur 242, drlg 4400 ft. Zimmerman's Starr 1, por 89, dr 2600 ft. **Webb County**—Holland's Bruni 1, Borrego gr, prep sp. Jones' Bruni 1, Albercas gr, dr 1300 ft. O'Byrne's Lacy 1, sur 2050, dr below 2000 ft.

SAN ANTONIO DISTRICT

Atascosa County—Stanley's Schumann 1, Malone sur, dr below sur csg. Western Gulf's Vanegas 1, Garza gr, testing, 2743 ft. **Bastrop County**—Teas' Grizzard 1, Graham lge, dr 5825 ft. **Bexar County**—Blackburn's Miller 1, sur 324, dr below sur csg. **Blanco County**—Johnson's Glasscock 1, sec 50, dr 900 ft. **Caldwell County**—Artz's Campbell 1, Martinez sur, testing, td 1565 ft. **Frio County**—Humble's Schley 1, sur 174, dr 3100 ft. **Guadalupe County**—King's Rosenbrock 1, Duran sur, dr 600 ft. Marosis' Maierhofer 2, Peters sur, dr 900 ft. Williams' Weber 1, Torres sur, dr 1000 ft. **Kendall County**—Dorsey's Flannagan 1, Sweeney sur, still sd, 350 ft. Millican & Norman's Werner 1, sur 781, wocs, set csg around 912 ft. Reed's Marquart 1, Traviesso sur, drlg 550 ft. **Kimble County**—Phillips' Mudge 1, sur 7, sd 2003 ft. Plateau's Bolt 1, sur 42, dr 1560 ft; Davis 1, sur 44, dr 300 ft; Hunger 1, sur 43, dr 1612 ft. Rose's Gaebler 1, D. S. de Beales sur, lcn; Gaebler 2, D. S. de Beales sur, mir. **Lee County**—Pederson's Brown 1, Hudson sur, dr 2750 ft. Tarver's Lawhon 1, Nantz sur, dr 3350 ft. **Maverick County**—Lockhart's Asbrook 1, sur 83, dr 3040 ft. Wellington's Chittim B-1, I&GN sur, dr 2210 ft. **Medina County**—Killian, Cruse-turner & Martin's Wiemers 1, sur 51, sd 250 ft. Stieren's Hoeglin 1, sur 335, dr 650 ft. Ziegler's Saathoff 1, sur 231, sd 905 ft; Weimers 1, sur 274, sd 873 ft. **Travis County** R. F. C.'s Jones 1, Hornsby sur, dr 1195 ft. **Williamson County**—Anderson's Teichelman 1, Jett sur, dr 1800 ft. Coffield's Poe 1, Owen sur, dr 400 ft.

CORPUS CHRISTI DISTRICT

Bee County—Atlantic's Courtney 1, Kerr sur, dd to 3663 ft, testing. Devonian's Maley 1, Coley sur, dr 4001 ft. **Brooks County**—Keystone's Mestina 1, Mestina y Gonzalina gr, dr 1950 ft. **Calhoun County**—Hiawatha's Roemer 2, Ogsberry sur, dr 7000 ft. **Goliad County**—Sun's Shaper 1, Payne sur, dr 5450 ft. **Hidalgo County**—Harding's Card 1, Hidalgo Canal Co. subd, dr below sur csg. Phillips Flores 1, por 39, dr 7400 ft. Wheelock & Collins' Temple 1, La Blanca & Llano Grande gr, 6400 ft. Howell's Stillwell 1-A, Bustillos sur, dr 2000 ft. Humble's Adams 1, Lopez gr, td 6066 ft, circulating w/oil to loosen stuck ds; True 1, Garza gr, dr below 3000 ft. Mag-

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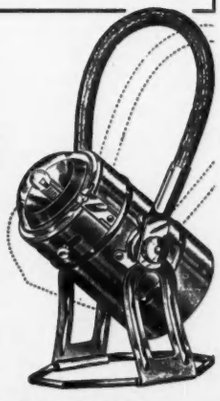

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nolia's Garcia 1, La Anima Sola gr, dr 4400 ft; Martin 1, Anna Maria Vaca lge, dr 6300 ft. Richardson's Garrett 2, sec 86, lcn. Shell's Blucher 1, Best sur, dr below 6725 ft. Smith & McDannald's Rooney 1, Casa Blanca gr, dr 3200 ft. Transwestern's Dunlap 1, sur 179 and 181, dr below 5000 ft. **Kleberg County**—Pure's State 1, tr 522, cutting out ds, td 8350 ft. **Lavaca County**—McCord's Russek 1, Reynolds sur, sd 500 ft. Crosby's Graff 1, Jack sur, dr 3330 ft. **Live Oak County**—Turner's Federal Land Bank 1, Turner sur, mim. Wallace & Jones' Burrows 1, sur 138, dr 1900 ft. Wellington's Sanger 1, sec 349, wor. **Nueces County**—Texas' Little 1, Little sur, pits dug, mim. Union's Brown 1, A. F. de la Fuentes sur, co hole, dr to 10,792 ft, conditioning mud last rept. **Refugio County**—Coronado's Rooke 1, Bonnie View subd, coring below 5833 ft last rept. **San Patricio County**—Bennett's Ivey 1, Pauls subd, cor below 5350 ft. Illinois & Dunn's Wilson 1, Morris sur, mim. Morgan's Smith 1, sec 23, Pauls subd, dr 2500 ft.

TEXAS GULF COAST

Brazoria—Sterling's Kramer 1, flank well at Stratton Ridge, T. W. Grayson sur, dr shale 4625 ft. **Galveston**—Sun's Cade 1, Bolivar prospect, A. Dickson sur, sd 8250 ft. **Grimes**—Hubert Holt's Greer 1, Carlos area, waiting on fuel 2761 ft. **Matagorda**—Ohio Oil Co.'s Cornelius 1, North Markham prospect, P. C. Yarbough sur, dr shale 7081 ft. **Montgomery**—W. L. Todd's Martin 1, s of Montgomery, M. Landrum sur, dr shale 3920 ft. D. B. MacDaniel's Flemming 1, swc of county, T. J. Randall sur, dr shale 3960 ft. **Newton**—Republic's Sabine Tram Co. 1, northwest Starks prospect, I. Garner sur, ru. **Tyler**—Chapman Mineral s Angelina County Lbr. Co. 1, Emilee area, J. Conn sur, lcn. **Washington**—Mt. Selman Oil Co.'s Pohlmeyer 1, ne of Brenham, A. Kuykendall sur, dr shale 2253 ft. Speed Oil Co.'s Makousky 1, Greenville area, D. McIntyre sur, dr shale 2818 ft.

ROCKY MOUNTAIN STATES

COLORADO

Archuleta—Pagosa Oil & Dev. Co.'s Macht 1, 32-36n-1w, dr 1840 ft. **La Plata**—Nick Spatter's Bryce 1, se sw sw 31-33n-9w, dr 1610 ft. **Mesa**—Continental-California-Amerada's Miller 1, sw sw nw 36-8s-91w, coring 6648 ft. **Park**—South Park Oil Co.'s Lemarr 1, ne ne se 34-11s-75w, dr 6070 ft. **Prowers**—Continental's Ruby 1, cne nw 31-21s-44w, running 9⅝ in csg at 5149 ft. **Pueblo**—Eden O&G Co.'s Horse Creek 1, sw se 29-19s-64w, dr 445 ft. **Rio Blanco**—Buford Oil Co.'s Government 1, cne ne 20-1n-91w, dr 2767 ft. **Routt**—Moore, Craig et al's Irwin 1-X, csw ne 33-7n-85w, sd with surface cas set at 125 ft td.

MONTANA

Big Horn—Buzzeti & Corkins' 1, ne nw 23-1s-32e, ru ct. **Carbon**—R. C. Tarrant's Heare 2, nw se nw 14-6s-19e, setting 8⅛ in csg 2336 ft. **Choteau**—Security Pet. Co.'s Johnson 1, cne 23-26n-3e, dr 2000 ft. **Teton**—California Co.'s Unit 1, ne se sw 26-27n-9w, dr 560 ft. Gulf States Oil Co. and Kodiac Oil Co.'s Wallenstein 1, sw nw sw 5-27n-9w, dr 2536 ft.

NEBRASKA

McPherson—Pawnee Oil Co.'s 1, cnw nw 28-18n-31w, rur. **Sioux**—Felmount Oil Corp.'s Kinion 1, csw ne 22-27n-55w, dr 6281 ft. Union's Buckley 1, nwc se se 15-28n-58w, sidetracking at 5000 ft.

NORTH DAKOTA

Williams—California Co.'s Kamp 1, cnw ne 3-154n-96w, fsg 10,281 ft.

WYOMING

Big Horn—A. L. Rankin's Karjala-Rankin 1, csw nw 10-54n-94w, dr 623 ft. **Carbon**—Cunningham Oil Co.'s Union Pacific 1, nw se ne 21-22n-78w, bldg rig. Company's Union Pacific 1, se nw sw 7-23n-78w, ru ct. **Sublette**—Frontier Pet. Co.'s 1, se se sw 1-28n-114w, dr 2240 ft. Wyoming Pet. Co.'s Budd 1, cne ne 10-29n-113w, dr 735 ft. **Weston**—John Boroby's George 1, se sw nw 26-48n-64w, sd 2193 ft.

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Metal & Thermit Corporation, 120 Broadway, New York, announces a new edition of its pocket-size pamphlet on Murex welding rods. The new issue contains brief data on the physical properties and chemical analysis of the weld metal deposited by each of the 20 odd electrodes in the Murex line.

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By
DAISY WINIFRED HEATH

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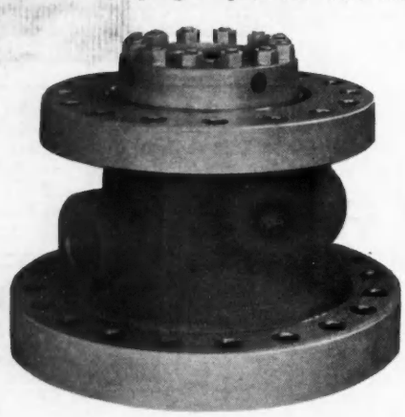
CASING HEADS
National Supply Company

A feature of National Type EH Casing Heads described in a recent bulletin by The National Supply Company, Toledo, Ohio, is the ease with which stretch can be taken in the casing string. The mandrel coupling is provided with internal casing threads at both ends and external Acme threads for connecting to the mandrel. With the mandrel removed, the mandrel coupling can be attached to a special casing nipple and lowered into the outer string so as to suspend the inner string with the desired amount of stretch.



National EH-4 Casing Head

The packing arrangement, exclusive to National casing heads, is particularly effective. A single gland compresses two rows of narrow asbestos packing. The packing is easy to apply and can be compressed by one man using a small end wrench. The anchor ring, which retains the packing, also serves to hold the mandrel on its seat. It would prevent the parts from shifting, even though the inner string should part.

After the cement has set, when it is desired to take stretch, the mandrel coupling is screwed on the spacing nipple. The landing joint is threaded through the mandrel and mandrel wrench and is screwed into the upper end of the mandrel coupling. This assembly is lowered into the well where the spacing nipple is screwed on the top joint of the casing standing in the well. Stretch is taken and the mandrel is screwed into place with the mandrel wrench provided for the purpose. The casing is then slacked off, the landing joint backed out and packing installed.

Several types of connections are available on these heads. When they are threaded on both ends and the next smaller casing head or the tubing head is supported on a nipple attached to the mandrel coupling, the head is known as Type EH-1. The Type EH-3 is similar to the EH-1 except that the upper end is flanged. This flange permits attaching blow-out preventers or flanged tubing and casing heads. The Type EH-4 Casing Head (illustrated) has flanges at both ends. It is for use as an assembly of stacked casing heads. All flange dimensions are of the proposed A.P.I. standards. Further detailed description may be found in National Descriptive Bulletin No. 164.

LEAD SEAL PACKER
Security Engineering Company

Security Engineering Company, Whittier, California, has recently developed a new type lead seal packer that is extremely simple in its setting action. It requires no twisting or turning to set, has no slips to jam or get out of order, and completely eliminates any danger of setting the packer in the wrong location.

The packer consists essentially of two parts, a hook collar and the packer itself. The hook collar is made up at the desired position in the casing string, replacing a regular casing coupling. The packer has strong springs located around its circumference and are so engineered that they cannot possibly catch on the casing couplings while the tool is being lowered into the hole. However, as soon as the packer reaches the specially formed recess of the hook collar, the springs instantly expand and lock the packer against further downward progress. Then, it is only necessary to lower the weight of the run-in string straight downward against the springs, thus expanding the packer and forming a fluid-tight seal. When it is desired to remove the packer only, a straight lift is required to pull the springs free and allow it to be quickly withdrawn from the hole.

A special circulating joint can also be run with the packer for multiple production work, or wherever it is desired to establish circulation between production strings. This joint has two long slots on opposite sides of the body, and when the run-in string is lifted straight up these ports are opened, allowing circulation to be established between the inside and outside of the string. When the run-in string is lowered, the joint telescopes, thus closing the ports, automatically making a fluid-tight seal against a lead ring.

GENERATOR FOR STARTING DIESEL ENGINE
Hercules Motors Corporation

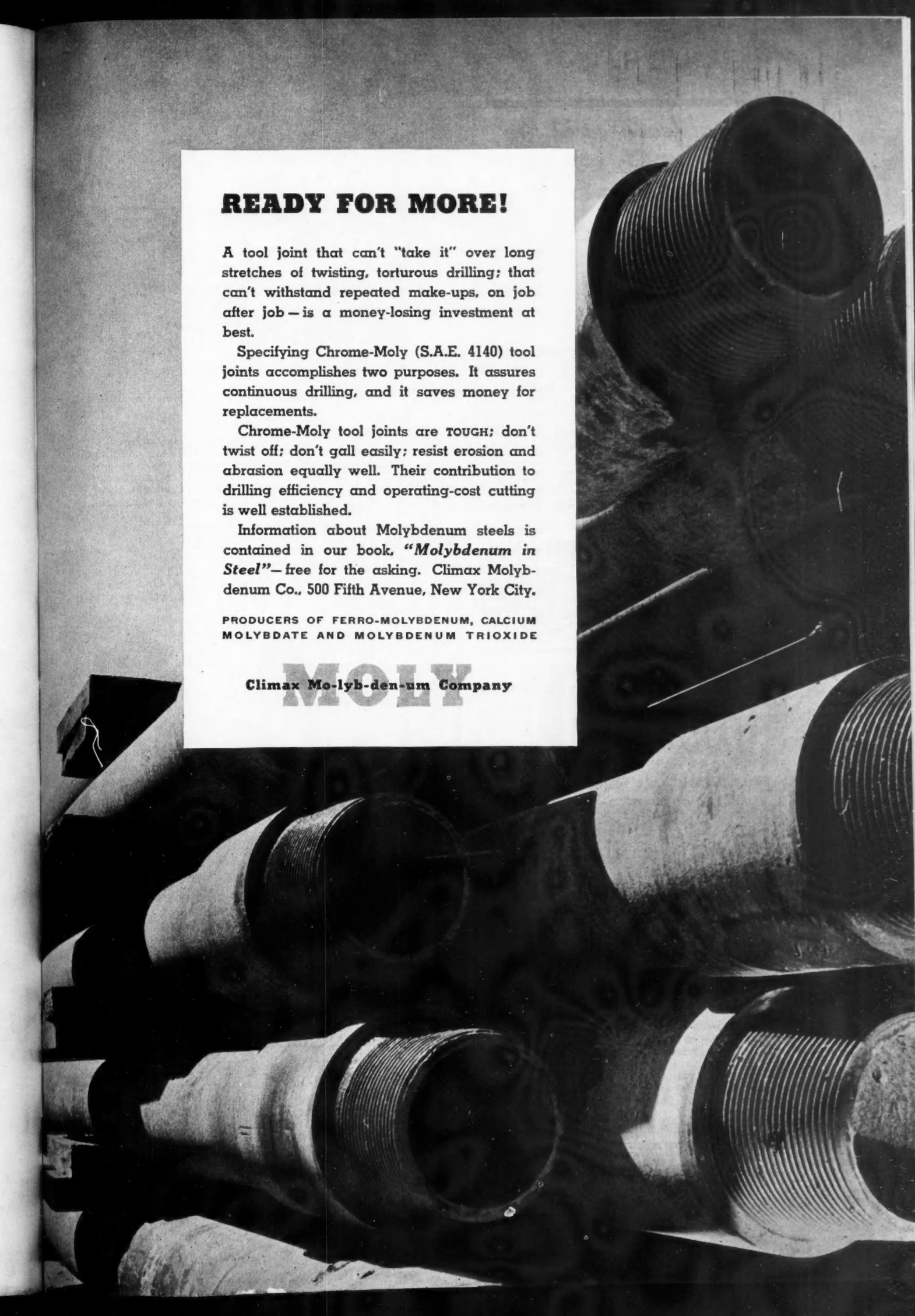
Quick starting of Hercules Diesel engines used in three types of Lincoln "Shield Arc - SAE" welders is now accomplished without the aid of special starting motors. Operated by batteries, the main welding generator provides ample torque and speed for easy starting of the engine. No extra parts are necessary, as the welding generator frame is mounted directly to the engine bell-housing and the gen-

The Most Successful of all
GAS BURNERS

Actual
Stack Test
10.2% CO_2

INFERNO makes a Low Pressure Gas Burner with which every boiler owner in the world should be familiar. It has no rival. It cuts fuel costs to the bone and is a pleasure to operate. If you don't know what it will do for you, take time NOW to ask your supply store or write us for Bulletin No. 13.

THE INFERNO CO.
P. O. Box 1138 **Shreveport, La.**
"Makers of Better Steam Equipment"



READY FOR MORE!

A tool joint that can't "take it" over long stretches of twisting, torturous drilling; that can't withstand repeated make-ups, on job after job — is a money-losing investment at best.

Specifying Chrome-Moly (S.A.E. 4140) tool joints accomplishes two purposes. It assures continuous drilling, and it saves money for replacements.

Chrome-Moly tool joints are TOUGH; don't twist off; don't gall easily; resist erosion and abrasion equally well. Their contribution to drilling efficiency and operating-cost cutting is well established.

Information about Molybdenum steels is contained in our book, ***"Molybdenum in Steel"***— free for the asking. Climax Molybdenum Co., 500 Fifth Avenue, New York City.

PRODUCERS OF FERRO-MOLYBDENUM, CALCIUM MOLYBDATE AND MOLYBDENUM TRIOXIDE

MOLY

Climax Mo-lyb-den-um Company

Principal features of the

B-M-W Tex Type Working Valve

Crown
Upper Connection
Follower Nut
Composition Rings
Steel Washers
Body
Composition Rings
Steel Washers
Follower Nut
3-Arm Loop

Exceptionally long runs are obtained with B-M-W Tex Type Working Valves because of their outstanding ability to withstand wear and the cutting action of sand.

Complete Data on Request

WHERE OBTAINABLE?

B-M-W Products, all obtainable at supply stores, include: ● TEX TYPE Plunger Fittings and Valves; ● ADMORE Insert Pump Anchors; ● NEILSON Tools (Safety Sucker Rod Hooks, Tubing Hooks, Rod Elevators, Sucker Rod Sockets, etc.); ● BALLS and SEATS (made for every pumping service); ● ADMORE Liner Barrels; and ● COLLINS Belt Clamps.

BRADFORD MOTOR WORKS INC

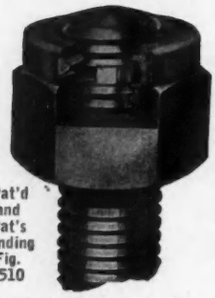
OIL WELL SUPPLIES

BRADFORD, PA. — TULSA - OKLA.

UNSHAKO

The Nut That Can't Shake Loose

Tops For Maintenance Work . . . .



Pat'd and Pat's Pending Fig. 1510

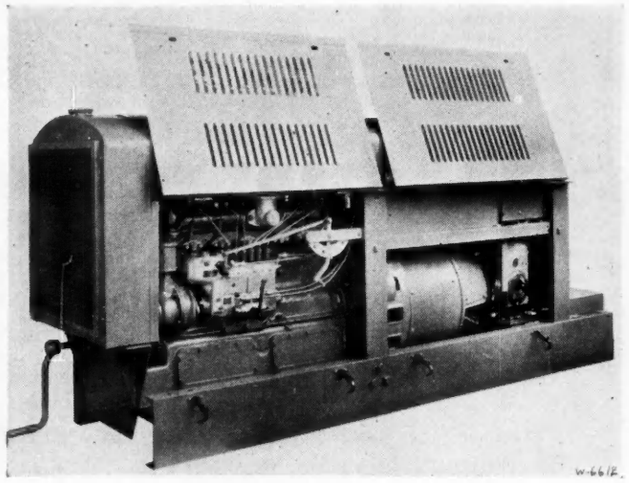
Cutout Section Showing Locking Ring in Place.

Take Far Less Time to Install

Why fiddle and fuss with nut locking devices that consume valuable time and require extra work to apply. Use "Unshako" . . . the one piece lock nut that cannot fail. Goes on like a regular nut and stays there until a wrench is used to get it off. The built-in locking ring gives it distinctive live action whenever vibration tends to back it off, gripping the bolt or stud with unparalleled tenacity. Write us for full particulars.

STANDARD PRESSED STEEL CO.

BRANCHES: BOSTON, DETROIT, INDIANAPOLIS — JENKINTOWN, PENNA. Box 567 — BRANCHES: CHICAGO, ST. LOUIS, SAN FRANCISCO



Lincoln welder utilizes generator for starting Hercules Diesel engine.

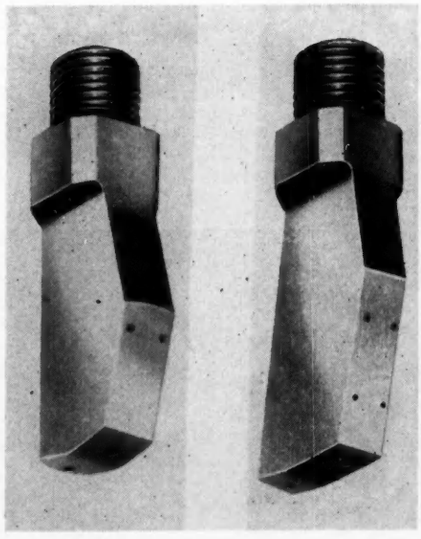
erator shaft is connected directly to the Diesel engine flywheel by special type of flexible coupling. This coupling transmits the starting torque to the engine.

Standard six-volt automobile batteries connected in series are used, simplifying field service, and a special generator for the batteries is not required as the batteries are charged by the exciter of the welding generator.

WELDING TIPS

The Linde Air Products Company

The Linde Air Products Company, 205 East 42nd Street, New York, announces two new multi-flame welding tips for pipe line construction by the Lindeweld process. The introduction of these two new welding tips has resulted in increased speeds of 25 percent or more and a corresponding reduction in gas consumption. The four-flame tip has been designed for position welds, while the six-flame tip is intended primarily for rolling welds.



Linde 4- and 6-Flame Tips

The four-flame tip provides, in addition to the main welding flame, two flames for preheating the vee and a fourth flame for preheating the welding rod. The six-flame tip is similar to the four-flame tip in design with the exception that it has two additional preheat flames, so that four flames preheat the walls of the pipe, a fifth flame preheats the welding rod, and a sixth flame does the actual welding.

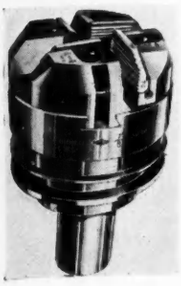
DIE HEADS ADAPTABLE TO SPECIAL THREADING

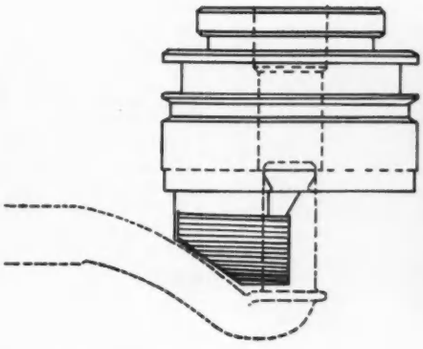
Landis Machine Company

Landis Machine Company, Waynesboro, Pennsylvania, says in a recent announcement: "It is frequently necessary to change the design of a die head in order to meet some special production requirements. In the period of a year Landis engineers adapt a great many Landis die heads to these special threading operations.

"Recently one of the large automotive plants required a head for cutting the thread on the front wheel upper con-

trol arm of their knee action assembly. This particular part is a steel forging and has a very odd shape. A sharp bend immediately back of the threaded section made it exceedingly difficult to adapt a die head of sufficient capacity to handle the required diameter and at the same time clear the sharp bend to permit cutting a thread of satisfactory length.





"The photograph shows the 7/8-inch Landex Type L head which is being used to thread the upper control arm, and the diagrammatic sketch illustrates how the head was changed to permit the successful handling of the job.

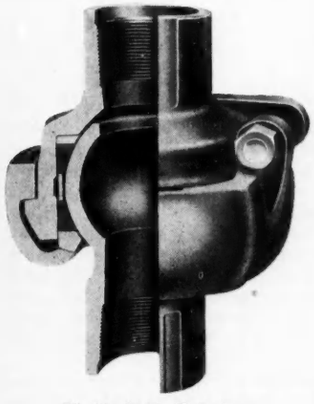
"A set of special wide chasers are employed. The chasers are milled off on an angle, as shown, to clear the bend in the "control arm." Likewise the chaser holders are beveled to eliminate any interference, or the possibility of their striking the "control arm" during the threading operation.

"The manner in which this job was handled shows clearly how Landis die heads can easily be adapted to handle the threading operation on parts of extremely odd shape or form."

BALL JOINT

Thornhill-Craver Company

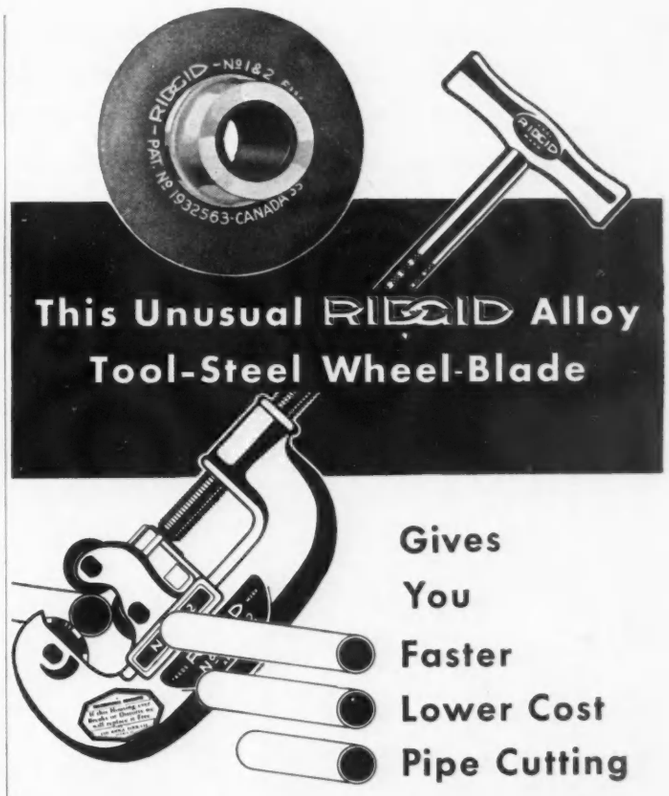
Thornhill-Craver Company, Houston, Texas, has applied the patented "Unibolt" coupling principle to a ball joint, which is now being offered to the trade.



Unibolt Ball Joint.

According to the manufacturer, the Unibolt Ball Joint presents several improvements over conventional flexible connecting devices. Tapered interlocking shelves are drawn together by making up on a single bolt, thus applying equal pressure on the packing entirely around the ball member. There are no threads between the component parts of the joint to gall or freeze. After the joint has been in service for a long period, it may be tightened by taking up on the one bolt, or the joint may be broken quickly and easily for repairs. The packing is a special composition which is impervious to oil, water or gas under high pressures and temperatures. The packing rings are identical, and therefore interchangeable. A space ring is provided between the packing rings to hold them securely in sealing position. Bronze thrust rings above and below the packing rings limit compression of the packing, effecting a metal-to-metal contact in event of undue overload.

The Unibolt Ball Joint is recommended for use on high-pressure steam lines, flexible manifolds, boiler headers, mud lines, etc., or on all conveyors of oil, water, gas, gasoline, air, and steam to take care of contraction and expansion, to simplify misaligned connections, and to prevent damage caused by intermittent vibration. It is available in cast steel only for 4000 pounds test pressure, 500 pounds steam working pressure, in sizes from 2- to 4-inch. A 1½-inch size is also available in 6000 pounds test pressure, and a 6-inch size in 2500 pounds test pressure. Misalignment ranges up to 38 degrees, depending on the size of the joint. All parts for a given size are interchangeable.



Your skill at mechanics makes it easy for you to see why this RIDGID Cutter with its new style wheel-blade can cut pipe more quickly and cleanly and last far longer, giving you extra economy.

For the RIDGID knife-like blade is coined out of fine tool steel, hammered, heat-treated and then assembled in the hub. That's what gives it the unusual stamina for hundreds of extra cuts, reducing cutter wheel expense, as thousands of users know.

Powerful housing, guaranteed warp-proof, always cuts true, twirls easily to your pipe size. You like the "feel" of this tool, enjoy working with it.

For time and expense saving and a tool you get a "kick" out of owning and using, buy the RIDGID Cutter — at your Supply House.

THE RIDGE TOOL CO., ELYRIA, OHIO

Stop 75% of your pipe wrench repairs with this famous RIDGID

That guarantee is your assurance that you won't have any expense for wrench housing repairs — nor the annoyance of wrenches out of commission. Buy from your Supply House.

RIDGID PIPE TOOLS

This Week with the Industry's EQUIPMENT SUPPLIERS

Paul R. Warner Becomes Frick-Reid Credit Manager

On August 15, 1938, Paul R. Warner, special representative of the First National Bank & Trust Company, Tulsa, Oklahoma, for the past several years, resigned from the bank to join Frick-Reid Supply Corporation as credit manager.

Warner was connected with the bank for 20 years, and brings to his new position a thorough background of banking and credit experience, particularly as it applies to the needs and requirements of the petroleum and supply business.

Leland Doan Elected Dow Chemical Vice President

Leland I. Doan, general sales manager for Dow Chemical Company, was named a vice president when directors held their annual meeting last week in Midland, Michigan. Other officers, all of whom were re-elected, are James T. Pardee, chairman of the board and a vice president; Willard H. Dow, president and general manager; G. E. Collings, vice president; Earl W. Bennett, vice president and secretary-treasurer; J. S. Crider, assistant treasurer; A. P. Beutel, assistant general manager; L. A. Chichester, auditor and assistant secretary; F. H. Brown, assistant secretary, and E. O. Barstow, W. H. Dow, C. J. Strosacker and Dr. W. R. Veazey, directors.

PAUL R. WARNER
Credit Manager, Frick-Reid Supply Corporation, at Tulsa

Hill-Giles Supply Company Is New Supply House at Houston

Hill-Giles Supply Company, with offices at 3702 Polk Avenue, Houston, is a new organization handling oil field supplies. An announcement of the company states that it is authorized distributor for Pittsburgh Steel Company on oil country tubular goods; W. C. Norris Manufacturer, on sucker rods and general pumping equipment, swage nipples, bull plugs, couplings, etc.; and Gearench Manufacturing Company, on tongs and wrenches. In addition the company handles Sonner gas burners; Chiksan swing joints, steel rotary hose, mud mixing guns, etc., and Varco slush pump liners, in addition to a general line of miscellaneous supplies.

Officers of the company, all of whom formerly were with Oil Well Supply Company, include W. C. Hill, president; N. E. Giles, vice president and treasurer, and H. A. Spuhler, secretary.

Wilson Supply Company Opens Two New Stores

Wallace Wilson, president of Wilson Supply Company, this week announced opening of stores at Alice, Texas, and Magnolia, Arkansas. Complete stocks of equipment are carried at both new stores. The Magnolia store is also stocked with fishing and cutting tools of all types. A fishing and cutting crew is stationed at the Magnolia store.

J. J. Gibson Buys Spark Plug Interests of Koehler

The J. J. Gibson Company, 2016 Canton St., Dallas, Texas, has purchased the entire spark plug interests of The Koehler Corporation, Boston, Mass. Henceforth this plug, known to the trade as the Sootless Spark Plug, will be made in Dallas. It is a brass bodied plug, mica insulated, resists sulphur gases and corrosion, and can be repaired.

Lane-Wells Company Makes Changes in California Personnel

Organization changes announced by W. T. Wells, president of Lane-Wells Company, include the following: Fred Shumack, formerly California sales manager and more recently actively identified with the organization of the electrolog division, has been named general manager of purchases. In this capacity Shumack will have control of company purchases, credits and collec-

A portion of the fleet of 20 Hobbs trailer units equipped with 1000-gallon tanks and pressure pumps used recently by Chemical Process Company, Breckenridge, in acidizing a well in Young County, Texas, with 20,000 gallons of acid. Ten pumps were connected and delivered fluid simultaneously. The acid charge was followed with an oil load of 230 barrels. Overall treating time of 59 minutes (for both acid and oil load) set a new record.

The complete Chemical Process Company fleet includes 71 trucks and 31 tank trailers.

Standco
NO-SMOKE
STANDCO BRAKE LINING
Nothing novel—no bunk—but it gets the job done without scoring brake rims. See page 1940, Composite Catalog.
Standard Brake Lining Co.

SPECIALTY OIL TOOL COMPANY SOTCO USA
SCIVALLY BROS.
RENTAL SERVICE
SOTCO ROTARY FISHING TOOLS
B. M. (SKIP) SCIVALLY, Manager
- Complete Stock of Fishing Tools for any emergency.
- Experienced operators available at all hours.

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MURRAY RUBBER CO.
Specializing in the manufacture of High Quality
Mechanical Rubber Goods
Prompt, Efficient Service to
OIL FIELD EQUIPMENT MANUFACTURERS
Molded, Mandrel and Extruded Packers and Washers
Houston's Only Exclusive Jobbing Manufacturing plant. Equipped with Calender, Mill, Tuber, Presses and Pot Vulcanizers.
FACTORY TRAINED MEN
1822-24 Washington Ave. Houston, Texas

FRED SCHUMACK
General Manager of Purchases, Lane-Wells Company

JAMES McPHEE
California Sales Manager for Lane-Wells Company

tions in all areas. His headquarters will be in Los Angeles.

James McPhee has been named California sales manager for the company and under his jurisdiction will come the sale and operation of the various Lane-Wells products and services including gun perforating, oil well surveying, directional drilling and electrical open-hole logging.

Dowell Opens New Montana Office and One in Canada

After four years of operation in the Rocky Mountain district with headquarters at Shelby, Montana, Dowell Incorporated is opening two new offices to keep pace with expanding field operations.

L. R. Austin, one of the pioneers of the acidizing industry, is opening headquarters at Casper, Wyoming. Successful acid treatments of Leo sand wells in Lance Creek and Tensleep sand in Salt Creek have established acidizing in the eastern Wyoming area. Year-round service will be maintained from the Cody station. A secondary station at Douglas, Wyoming, will service needs in Eastern Wyoming and Northern Colorado.

W. B. Tennis is opening a new office for Dowell in Calgary. This city has been chosen because of its rapid growth as an oil center. Tennis comes to Calgary with years of background in the oil industry and experience in the acidizing industry in Texas, New Mexico and Kansas. Field operations will be continued from Okotoks.

Caterpillar Tractor Executive Dies in California

C. Parker Holt, vice president and director of Caterpillar Tractor Company, and for nearly 40 years affiliated with it and one of its predecessors, Holt Manufacturing Company, died August 24 at his home in Piedmont, California.

Born in San Francisco, April 5, 1880, Holt was the son of Charles H. Holt, who had shortly before come from New England to San Francisco to found there the hardwood lumber business from which the Holt tractor and harvester manufacturing activities were the outgrowth, and from which, after the company had moved to Stockton, California, and Charles' brother, Benjamin Holt, had joined the organization, was developed the "Caterpillar" track-type tractor.

Fred A. Miller, Dresser Official, Dies

Fred A. Miller, national figure in the gas industry and honorary board chairman of S. R. Dresser Manufacturing Company, died August 22 at Beechwood, his home at Bradford, Pennsylvania. He had been in failing health for several months.

Long a prominent figure in the growth of the gas industry, Miller was for 35 years associated with S. R. Dresser Manufacturing Company. Joining Dresser January 1, 1903, he became successively secretary-treasurer, and in 1911, president, upon the death of Solomon R. Dresser, who was the original founder of the company in 1880. In 1929, Miller was made chairman of the board of directors. He resigned from this position May 27, 1938, on his 70th birthday. The directors later named him honorary chairman in recognition of his services.

Ingersoll-Rand Supplies Pumps and Condensers for Big Tanker

Ingersoll-Rand Company has been awarded contracts for the condensers, condenser pumps and boiler feed pumps for a third 18,500-ton tanker to be built for The Atlantic Refining Company at the Sun Shipbuilding & Dry Dock Company yards at Chester, Pennsylvania. When the new vessel is commissioned in January, 1940, the Atlantic tanker fleet will contain the world's three largest welded ships, the "J. W. Van Dyke" and the "Robert H. Colley," tankers of the same tonnage and welded construction, having been commissioned this year.

SECURITY
LEAD SEAL PACKER
with Circulating Joint

Here's a new production packer that has already made a big name for itself in California multiple production work. For positive simplicity and fool-proof operation you've never seen a packer like it...

★ You just run it in the hole and it sets **automatically** at exactly the right spot.

★ It positively cannot be set too high or too low in the well.

★ It releases instantly with only a straight pull.

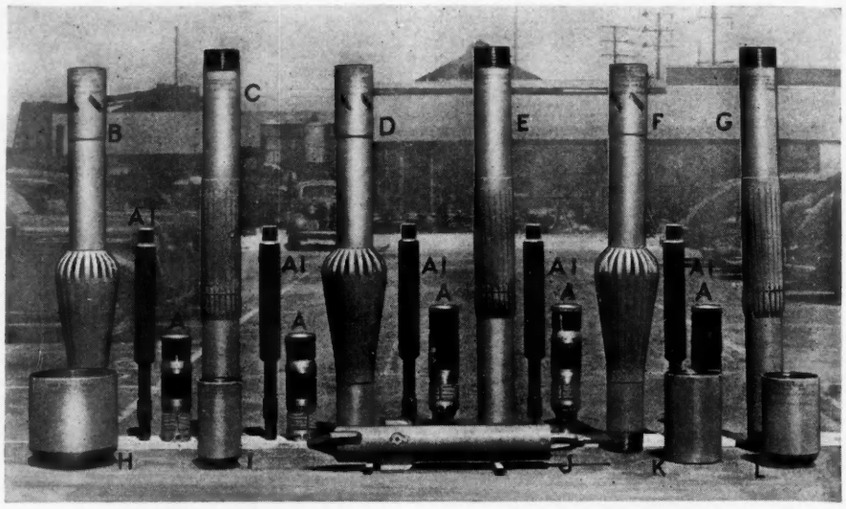
★ It is available both in steel and "Securaloy"—the new drillable oilfield metal!

THE SECURITY CIRCULATING JOINT, when used in conjunction with the Lead Seal Packer, provides a means for circulating between strings to bring in the well, clean out sand, etc. A straight lift on the production string opens circulating ports in each side of the joint. In the closed position these ports are made fluid-tight by a lead seal ring. Available in both steel and "Securaloy"—the new drillable oilfield metal.

Write today for illustrated bulletin describing these outstanding new devices!

SECURITY ENGINEERING CO., INC.
WHITTIER, CALIFORNIA
Export: Security Engineering Co., Inc. • 420 Lexington Ave., N.Y.C.
Sievers Reamers • Securaloy • Security Drillable Products

Interesting Application of Baker Equipment in Multiple Zone Field



A—Baker Cement Retainers.
A-1—Circulation Joints for use with Baker Cement Retainers.
B—Baker 7-Foot Whirler Baffle Collar, Solid, with Metal "Petal" Basket.
C—Baker Perforated Cement.
E—Hook-Up Nipple with
G—Inverted Metal "Petal" Basket.
D—Baker Whirler Cementing Collar,
F—Less Internal Mechanism, with Metal "Petal" Basket.
H—Baker Regular Cement Guide Shoe.
I—Baker Regular Cement Bull Plug Shoe.
J—Baker Rotary Wall Scraper.
K—Baker Regular Cement Float Collar.
L—Baker Regular Cement Guide Shoe.

In the Long Beach Harbor District of the Wilmington field in California there are a number of wells that are drilled through three producing zones which required cementing between the three strata. In addition to the two cement jobs necessary for this purpose a third is often necessary within the limits of the middle producing zone itself. The cement not only protects the zones from water but also provides a means of separating the oil production, since that from the top formation (the Ranger) is always kept separate from the oil from the two Terminal zones below. Moreover, the production from the Upper Terminal and the Lower Terminal is sometimes segregated. The Baker equipment used for cementing operations in completing a typical well with the liner cemented in three stages is shown in the accompanying photograph.

The 18⅝-inch cement guide casing shoe was used on the surface string. The water string set just above the Ranger sand at 2593 feet was equipped with the 11¾-inch cement guide casing shoe but the casing was floated in by means of the cement float collar which was made up in the string above the shoe. The wall scraper was used to scrape the hole below the water string.

The 8⅝-inch liner which was hung in the 11¾-inch casing at 2540 feet was equipped with an 8⅝-inch cement bull plug casing shoe at 4252 feet and above this was a section of perforated liner through which oil from the Lower Terminal was taken. A blank section of pipe was located between the Upper and Lower Terminal zones and this was cemented by means of a No. 5-A cement retainer. In making up the liner, a 7-foot whirler baffle collar (solid with metal "petal" basket) was placed at the bottom of the blank section of pipe and a perforated hook-up nipple with inverted metal "petal" basket at the top. The cement retainer was set just above the ports of the whirler baffle collar and cement pumped through the retainer, out the ports and up around the blank section of pipe.

Another blank section of liner was located within the Upper Terminal to cement off a portion of this formation. At the bottom of this section was a whirler cementing collar less internal mechanism with metal "petal" basket, and at the top a perforated hook-up nipple with inverted metal "petal" basket.

A cement retainer was set as a casing bridge plug just below the ports of the whirler cementing collar and a cement retainer then set just above these ports to cement the blank section of pipe.

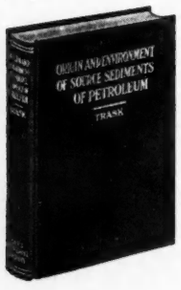
A third blank section of liner located between the Upper Terminal and the Ranger zones was cemented with the same kind of equipment and the same procedure as the one immediately below. The complete cementing of the liner in three stages therefore required the use of five cement retainers and the other equipment as shown in the photograph. In completing the well for production a string of tubing was packed off at the top of the lowest blank section of liner and oil from the Lower Terminal was produced through this tubing. A flow string had been packed off at the bottom of the top blank section of liner and production from the entire Upper Terminal was brought in between the flow string and the tubing. Production from the Ranger was taken from between the liner and the flow string. The initial production from the two Terminal zones was approximately 3500 barrels per day and that from the Ranger 1200 barrels per day.

A BOOK

That Will Be Consulted by Geologists for Years to Come—

"ORIGIN AND ENVIRONMENT OF SOURCE SEDIMENTS"

***By* PARKER D. TRASK *and* C. C. WU**



This book, recently off the press of the Gulf Publishing Company at Houston, embodies the results of five years research on the part of scientists assigned to this study by the American Petroleum Institute in carrying on the work made possible by the John D. Rockefeller gift of a quarter of a million dollars to be spent in fundamental research.

In summary the book presents—

Collection and Preparation of Samples
Measurement of Organic Content
Distillation Tests
Texture of Sediments
Calcium Carbonate Content of Sediments
Relation of Organic Matter to Environment
Detailed Analysis of Organic Constituents of Sediments
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Republic Supply Company Opens Two Illinois Stores

Republic Supply Company is opening two stores in the southern Illinois area, one at St. Alamo and the other at Salem. B. L. Rucker, who has been at Oklahoma City for the company, will have charge of both stores.

Squeaks from the Bull Wheel

Responsibility

"I'm so sorry, it was all my fault."

"Not at all, madam. I was to blame myself."

"But I insist the fault was mine. I was on your side of the street."

"That may be true, but, my dear madam, I am responsible for the collision. I saw you coming blocks away, and had ample opportunity to dart down a side street."

Rule Proven

Chief Instructor: "Now remember men, statistics don't lie. Now, for an example, if 12 men could build a house in one day, one man could build the same house in 12 days. Do you understand what I mean? Jeep, give me an example."

Jeep: "You mean that if one boat could cross the ocean in six days, six boats could cross the ocean in one day."

Work

"So your son is going to town to look for work?"

"Yep. Don't know's I blame him. Everybody feels like gettin' away and lookin' for work occasionally, 'stid o' stayin' where he knows it'll be waitin' for him regular."

Preferred

"Your fiance is a charming man. He has a certain something."

"Yes, but I would rather he had something certain."

Too Well!

"It's quite a long while since we met. The last time I saw you your father was ill. How is he now?"

"We lost him."

"How sad!"

"Yes, he married his nurse."

Something Like It

Daughter: "Did you ever hear anything so wonderful?" (as the radio ground out the latest in swing).

Father: "Can't say I have, although I once heard a collision between a truckload of empty milk cans and a car filled with ducks."

How's Business?

Two Jewish business men were riding home from their stores on the street car. Side by side they sat, both looking worried, and both remaining silent. Finally one heaved a deep sigh. The other studied him for a moment and then said in an annoyed tone: "You're telling me?"

Not Extravagant

McDougal had blown his lassie to a movie, and hailed a cab to take her home. When he assisted her in, she, knowing his natural bent where money is concerned, remarked: "Oh, Jock, it does make me feel awfu' wicked, ridin' about wi' you like this."

At that, Jock cheered up tremendously. "Then mebbe," quoth he, "It'll be worth the money after all."

Just in Passing

A man was arrested in Los Angeles not long ago and charged with nudism and brought into court.

"How old are you?" questioned the judge.

"Forty-five," admitted the accused.

"Married?"

"Yes,"

"How many children?"

"Twenty!"

"Case dismissed. This man is no nudist. He simply hasn't had time to dress."

Tact

"What is the tactful way for a girl's father to let her boy friend know it's time to leave?"

"He may causally pass through the room with a box of breakfast food."

A Difference

"Is it really lucky to have a black cat follow you?"

"Well, it all depends on whether you are a man or a mouse."

Well Defined

"Parse the word kiss."

"This word is a noun, but it is usually used as a conjunction. It is never declined, and more common than proper. It is not very singular, in that it is usually used in the plural. It agrees with me."

Female Vanity

"How's that new mare of yours turning out?"

"Oh, I wish now I'd bought a horse. She's always stopping to look at herself in puddles."

Go Up One!

Teacher: "If Minnie in Indian means water, what does Minnesota mean?"

Johnnie: "Please, teacher, it means sota water!"

Short Story

A kindly soul, while visiting in the district, met the oldest inhabitant, who boasted: "I be ninety-four, and I ain't got an enemy in the world." The kindly soul was elated—"That is a beautiful thought," she said.

"Yes, Miss, they be all of 'em dead long ago, thank goodness."

A Wise Ump

"What in the world is the umpire doing in the grandstand?"

"Oh, the spectators used to jump on him for his decisions so much that he figured if the folks in the grandstand could see every play so well, he'd better go up there and do his umpiring."

Just Because

"Why do you weep over the sorrows of people in whom you have no interest when you go to the theatre?" asked the man.

"I don't know," replied the woman. "Why do you cheer wildly when a man with whom you are not acquainted slides safely into second base?"

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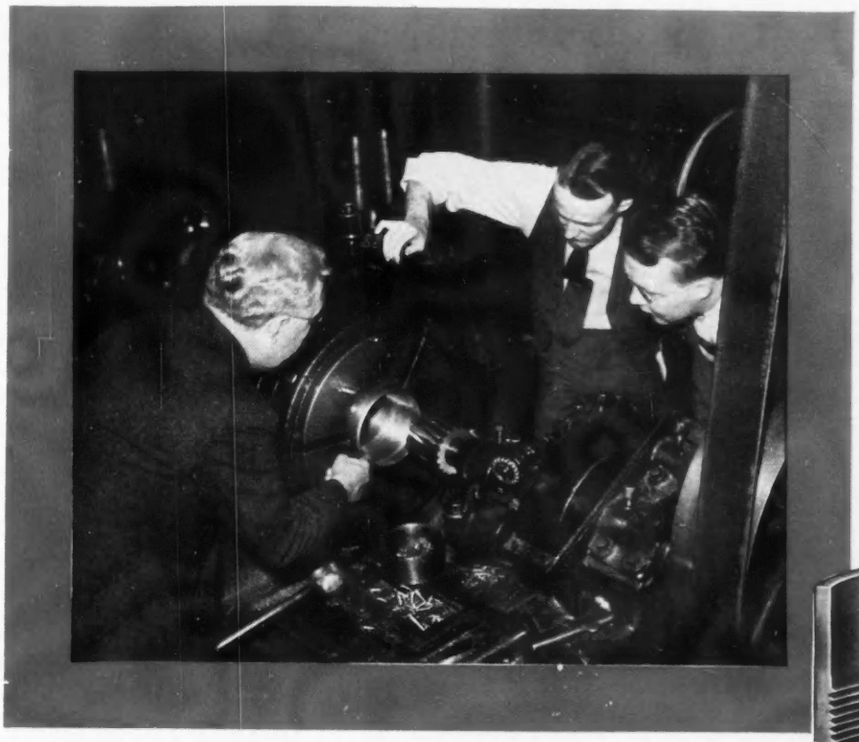

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